



CUY-90-14.90

PID 77332/85531

APPENDIX EX-59

CUY-090-1538 PID 0.725

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

CUY-90-15.38-15.97 ±

FED. ROAD DIV. NO.	STATE	PROJ.	
2	OHIO	I-1057(5)	117

CUY - 42-(17.43-18.02)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

INNER BELT FREEWAY

CUY - 42-(17.43-18.02)
CUYAHOGA COUNTY
CITY OF CLEVELAND

I-1057(5)
LIMITED ACCESS

IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO.

MICROFILMED
FEB 23 1958

MAR 15 1962
GROUND PHOTOLAB

PART 5 EAST APPROACH TO CENTRAL VIADUCT

GRADE SEPARATION WITH NEW YORK, CHICAGO AND ST. LOUIS RAILROAD AND CLEVELAND UNION TERMINALS COMPANY

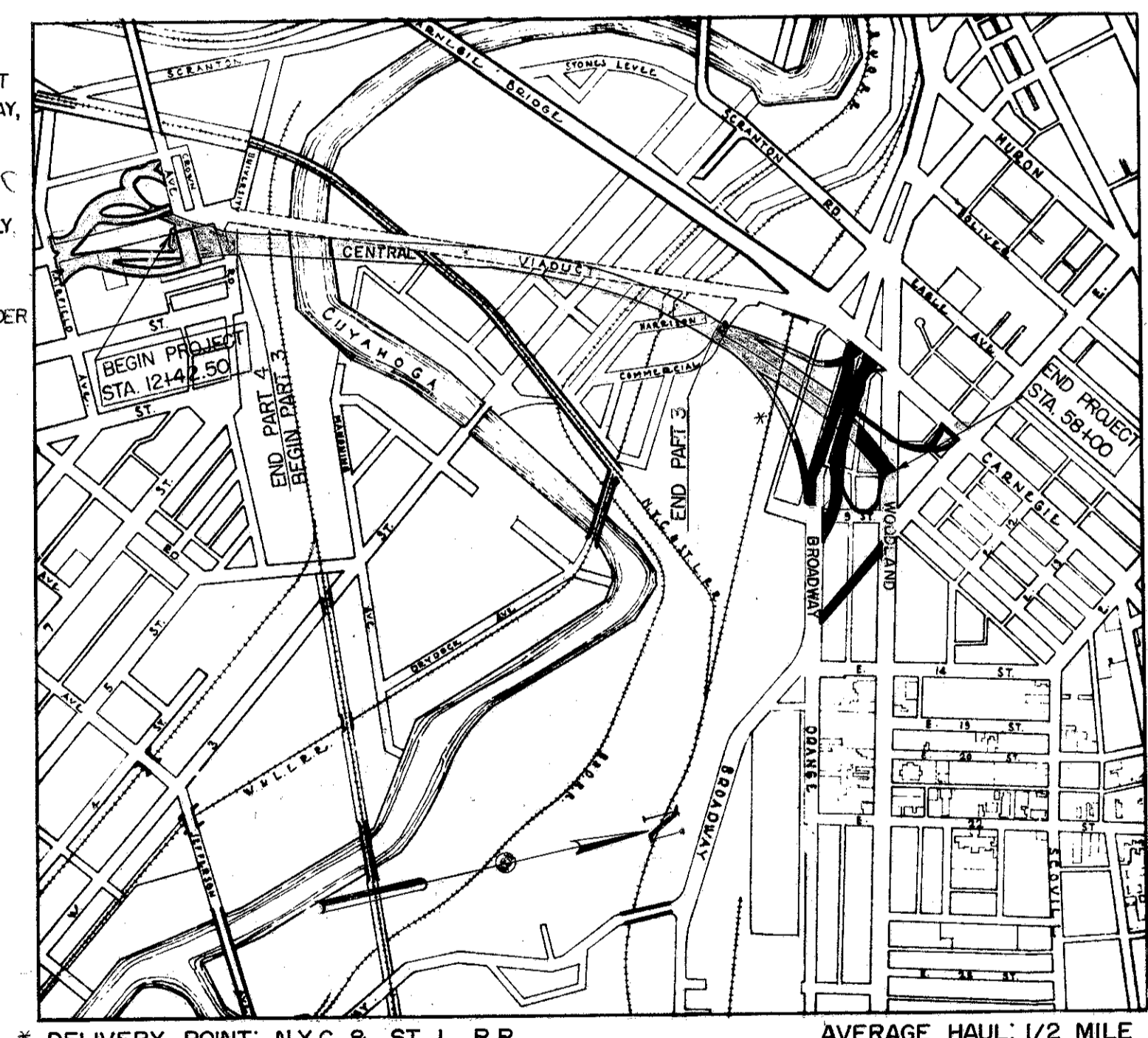
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

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LOCATION PLAN

APPROVED DATE 7/9/57 DIRECTOR OF PUBLIC SERVICE, CITY OF CLEVELAND
 APPROVED DATE 7-2-57 DIVISION DEPUTY DIRECTOR
 APPROVED DATE 10-25-57 DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING
 APPROVED DATE 10-19-57 ENGINEER OF BRIDGES
 APPROVED DATE 10-22-57 ENGINEER OF LOCATION AND DESIGN
 APPROVED DATE 10-22-57 DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION
 APPROVED DATE FIRST ASSISTANT DIRECTOR
 APPROVED DATE 10/28/57 ACTING DIRECTOR OF HIGHWAYS
 APPROVED DATE 11-25-57 CHIEF ENGINEER NEW YORK, CHICAGO AND ST. LOUIS RAILROAD
 APPROVED DATE 10-30-57 CHIEF ENGINEER CLEVELAND UNION TERMINALS COMPANY

LINE DATA

BEGIN PROJECT STA. 12+42.50
 END PROJECT STA. 58+00.00
 NET LENGTH OF PROJECT 4,557.50 LIN. FT. OR 0.863 MILES
 ADDITIONS: STA. 58+00 TO STA. 60+20 & STA. 10+70 TO 12+42.5 392.50 LIN. FT.
 NEW EAST NINTH ST. STA. 10+75± TO STA. 19+61± 8860± LIN. FT.
 BROADWAY WEST BOUND STA. 37+89.86 TO STA. 49+60± 1,170.14 LIN. FT.
 NET LENGTH OF WORK = 7,006.14 LIN. FT. OR 1.326 MILES

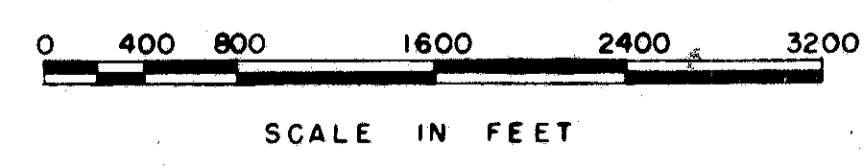
H. G. SOURS
ASSOCIATE
COLUMBUS

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

KANSAS CITY CLEVELAND NEW YORK
R. S. Bergendoff

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
E-101	1-1-57	S 207	4-28-55
5	6-8-57		
S-114	8-7-57		
M 206.14	7-15-49		



PORTION TO BE IMPROVED
OTHER HIGHWAYS & STREETS

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE
L-3	4-1-50	OS-2	12-17-56
L-3-A	4-1-50	I-15 NO. 2-B	6-1-57
RI-1	1-3-55	BT-50-70-71E NO.1	10-1-47
B-T-71R	3-2-53	AS-1-54	12-1-54
LJ NO.1	7-1-55	G-707	6-1-56
I-1, 2, 3, 4, & 5	2-20-45	I-8MH NO. 1-A	1-3-55
I-8CB NO. 2-2AB	8-1-56	I-12	7-1-54
I-8CB 2-3 & 2-4	5-1-52	L-1	4-1-50
I-8I NO. 2	12-1-54	TJ	5-1-56
I-8MH NO. 1	5-1-52	OS-1	12-17-56
I-8MH NO. 2	5-1-52	I-21:23	8-56
I-15 NO. 1	8-1-55	I-14-G	1-22-52
		I-35	1-2-56

MAR 15 1962
GROUND PHOTOLAB

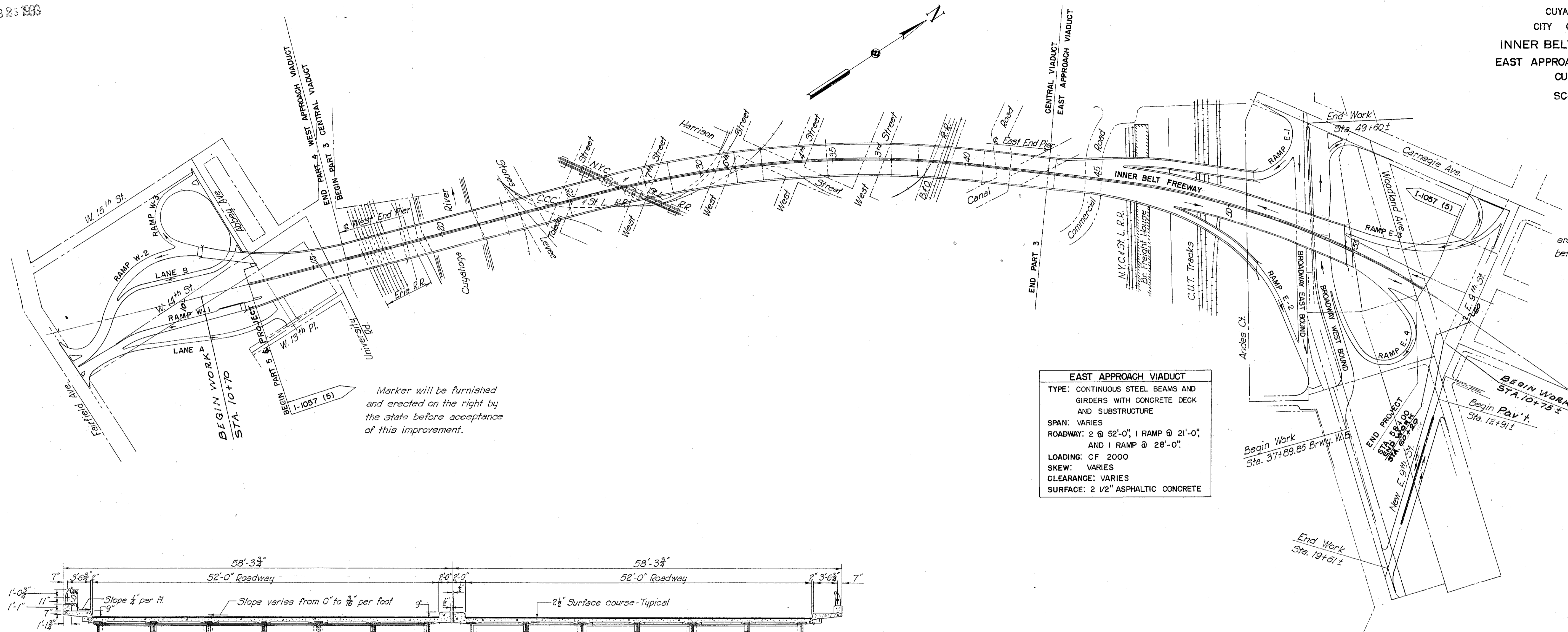
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DIVISION ENGINEER DATE

FILE NO. CUYAHOGA COUNTY 00081-R
 SEC. CUY-42-(17.43-18.02)
 DATE OF LETTING _____, 195____
 CONTRACT NO. _____

MICROFILMED
FEB 23 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	2
2	OHIO			117

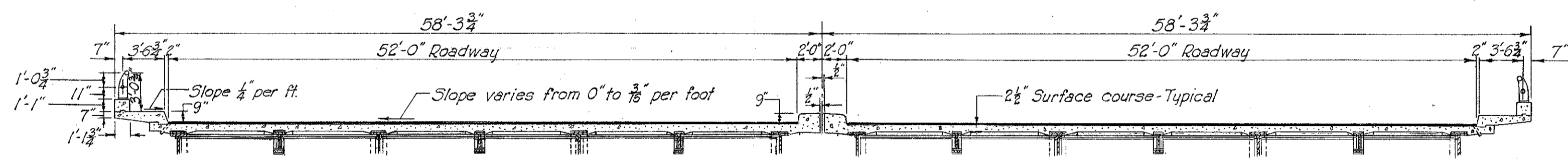
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
SCHEMATIC PLAN



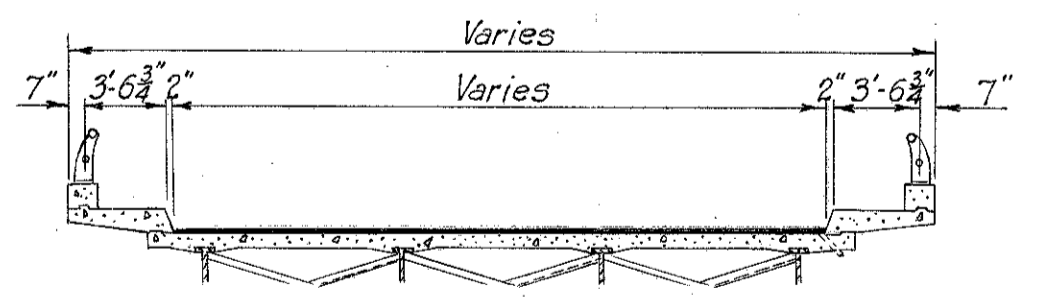
Marker will be furnished and erected on the right by the state before acceptance of this improvement.

Marker will be furnished and erected on the left by the State before acceptance of this improvement.

EAST APPROACH VIADUCT
TYPE: CONTINUOUS STEEL BEAMS AND GIRDERS WITH CONCRETE DECK AND SUBSTRUCTURE
SPAN: VARIES
ROADWAY: 2 @ 52'-0", 1 RAMP @ 21'-0" AND 1 RAMP @ 28'-0"
LOADING: CF 2000
SKEW: VARIES
CLEARANCE: VARIES
SURFACE: 2 1/2" ASPHALTIC CONCRETE



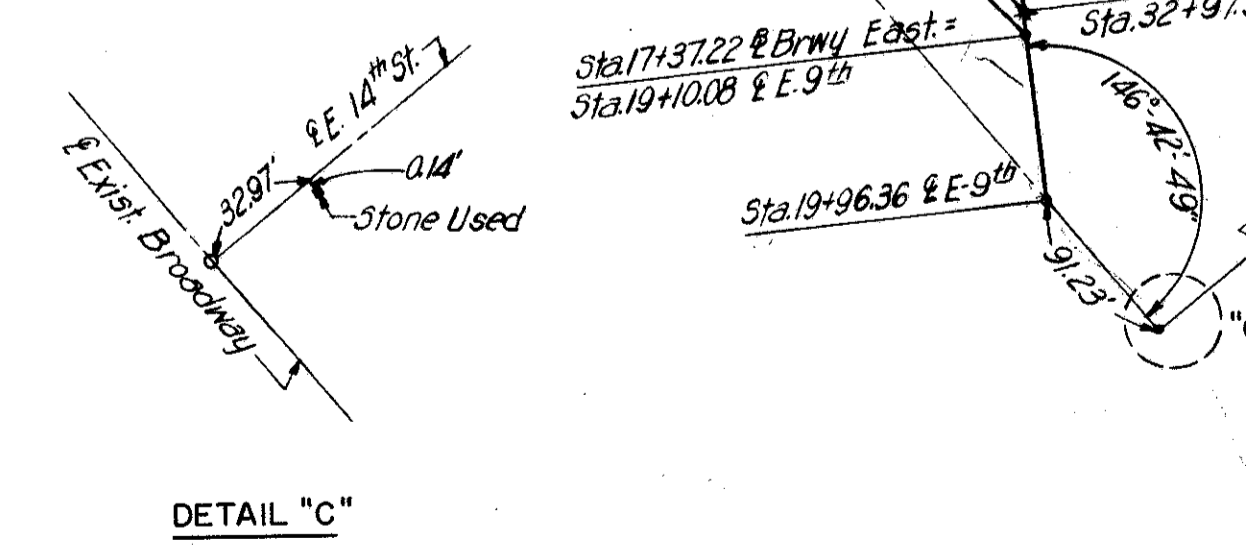
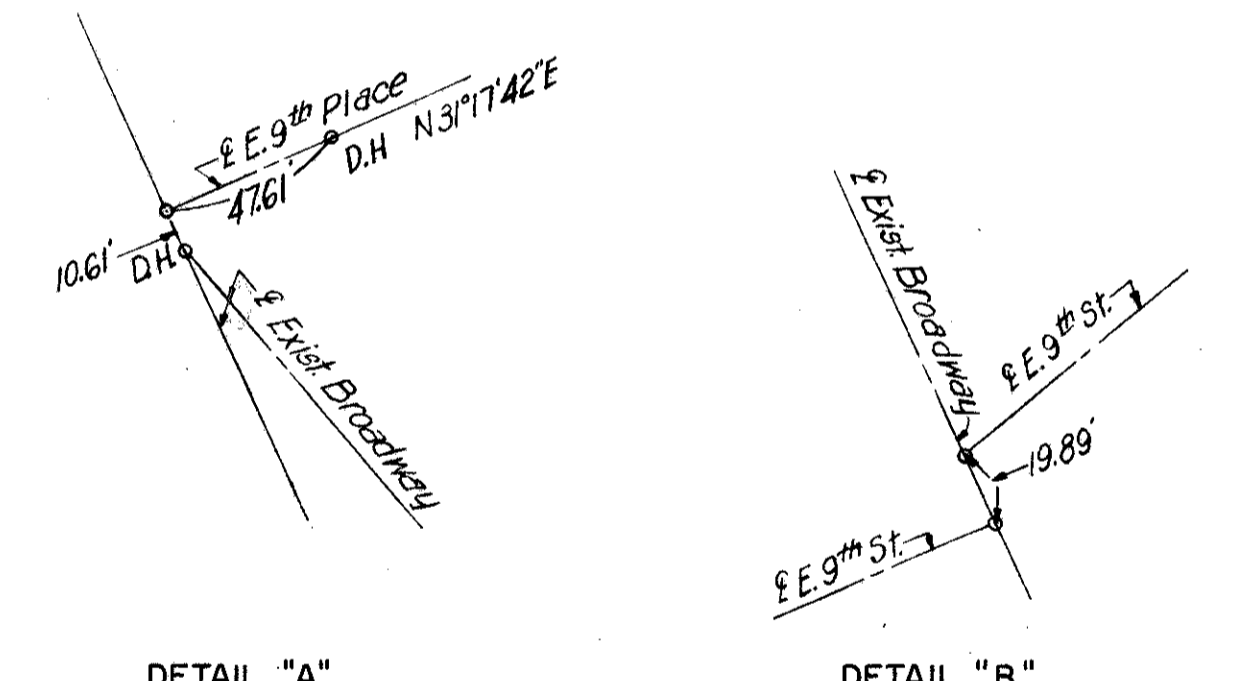
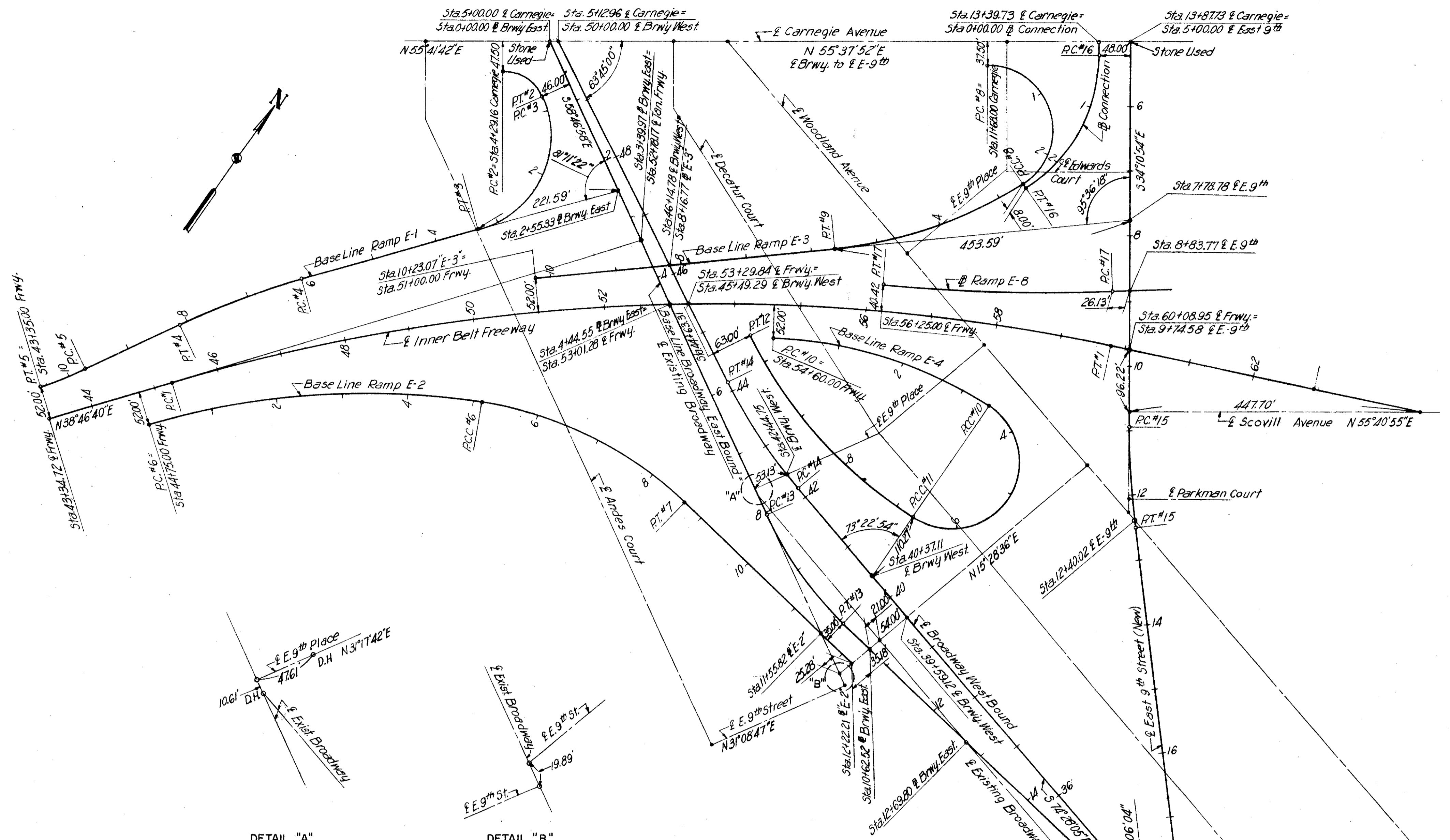
TYPICAL SECTION
WEST APPROACH VIADUCT
Scale: 1/8" = 1'-0"



RAMP TYPICAL SECTION
Scale: 1/8" = 1'-0"

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
GEOMETRIC LAYOUT

DATE FORNED
FEB 20 1958



CURVE DATA

Line Name	Curve No.	PC Station	PCC Station	PT Station	Curve Data					Curve No.
					D	Δ	R	T	L	
Freeway	1	45+28.22		59+80.20	2°00'00"	29°02'23"	2864.79'	741.94'	1451.98'	1
Ramp E-1	2	0+00.00		0+74.41		65°35'10"	65.00'	41.88'	74.41'	2
Ramp E-1	3	0+74.41		3+33.09		98°48'38"	150.00'	175.04'	258.68'	3
Ramp E-1	4	6+14.17		8+14.17	5°00'00"	10°00'00"	1145.92'	100.26'	200.00'	4
Ramp E-1	5	9+73.55		10+46.47	12°00'00"	8°45'00"	471.46'	36.53'	72.92'	5
Ramp E-2	6	0+00.00	5+15.63		5°00'00"	25°47'04"	1145.92'	262.29'	515.69'	6
Ramp E-2	7			8+67.24	10°00'00"	35°09'18"	572.96'	181.51'	351.55'	7
Ramp E-3	8	0+00.00	2+56.43			146°55'33"	100.00'	336.79'	256.43'	8
Ramp E-3	9			5+63.72	9°00'00"	27°39'23"	636.62'	156.70'	307.29'	9
Ramp E-4	10	0+00.00	3+50.00		9°00'00"	31°30'00"	636.62'	179.54'	350.00'	10
Ramp E-4	11			6+76.95		180°00'00"	104.07'		326.95'	11
Ramp E-4	12			10+57.79	8°00'00"	30°28'03"	716.20'	195.04'	380.64'	12
Brwy. East	13	8+02.58		10+07.34	10°30'00"	21°30'00"	545.68'	103.60'	204.76'	13
Brwy. West	14	42+16.93		44+14.82	7°00'00"	13°50'57"	818.51'	99.41'	197.84'	14
E. 9th Street	15	10+03.13		12+48.69	4°30'00"	7°00'00"	1273.24'	77.87'	155.56'	15
E-3 Connect.	16	0+20.90		2+66.62		56°44'19"	248.13'	133.99'	245.72'	16
Ramp E-8	17				2°00'00"	7°00'00"	2864.79'	175.22'	350.00'	17

SCALE 1"=100'
MADE H.M. DATE 11-10-56
TRCD. DATE
CKD. EG. DATE 12-7-56

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

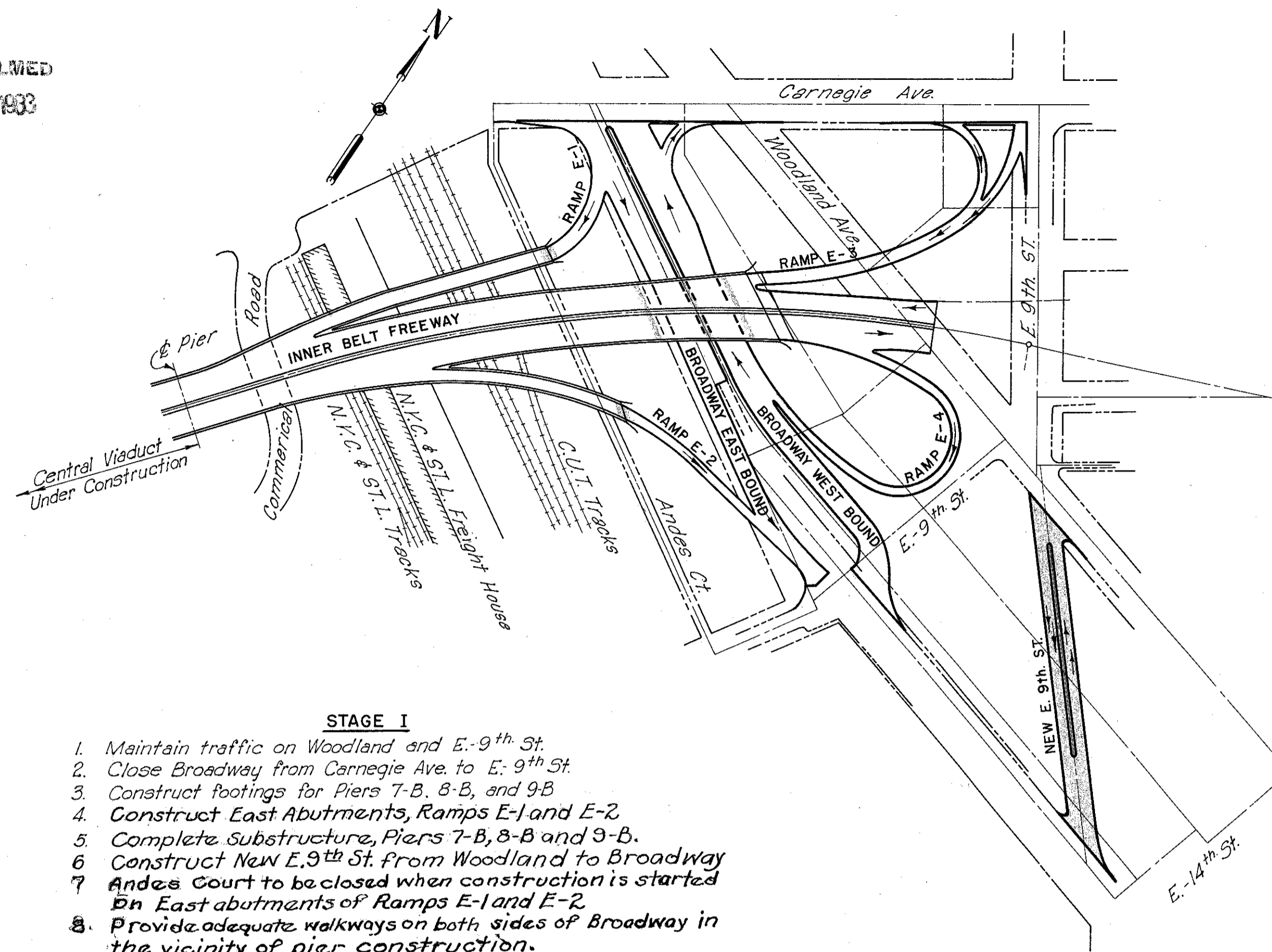
914 SHEET 2-A

MICROFILMED
FEB 23 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

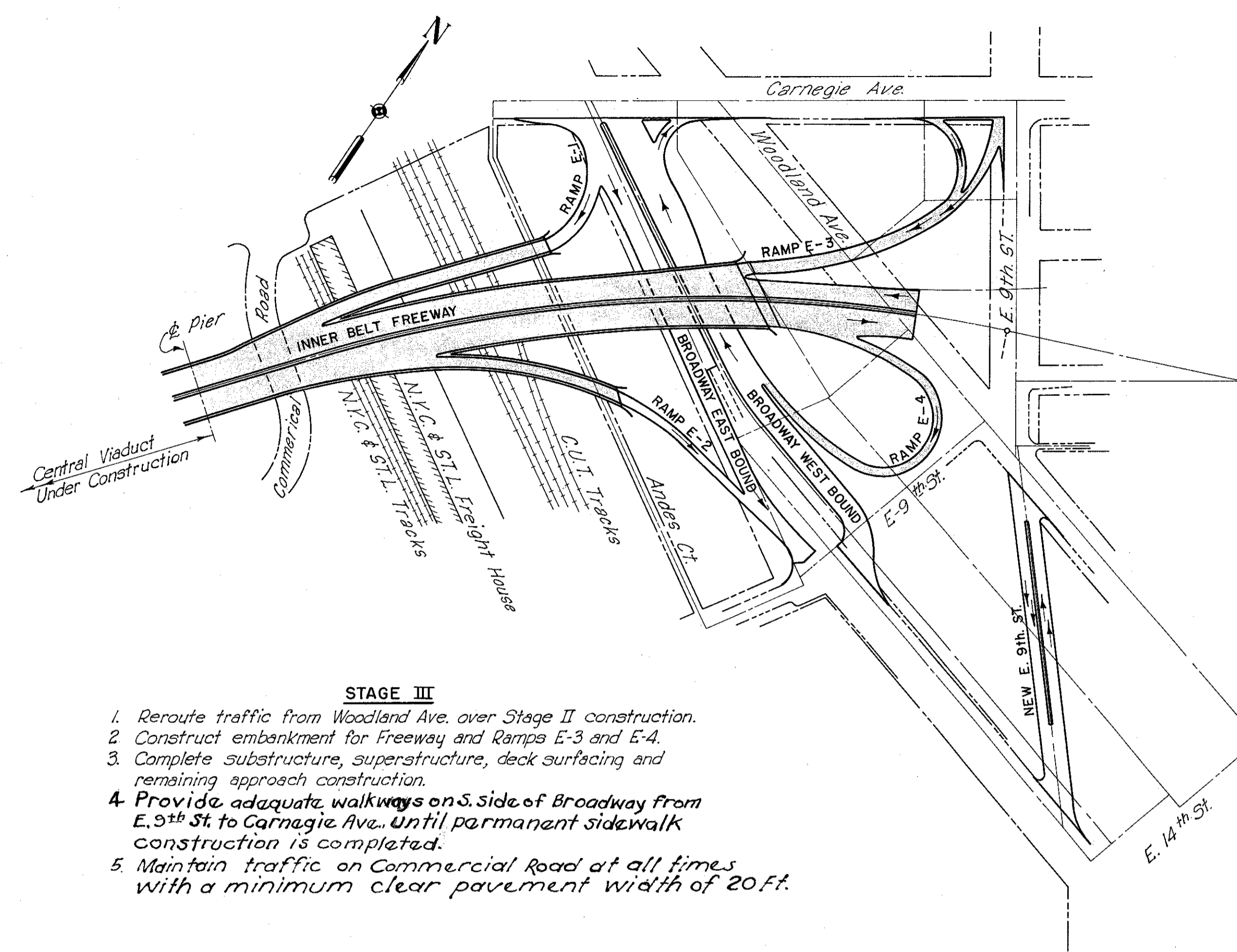
3
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
SEQUENCE OF CONSTRUCTION



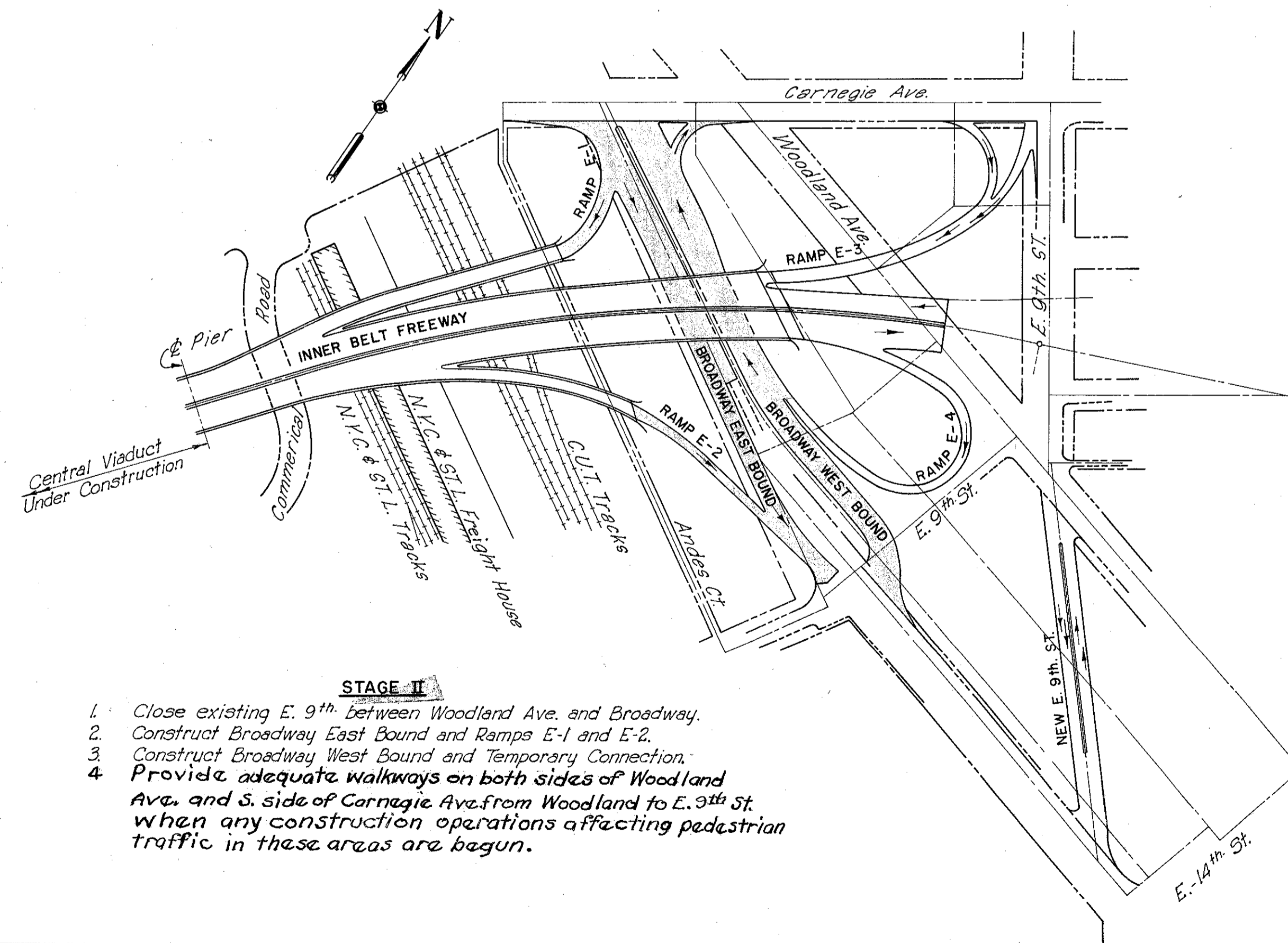
STAGE I

1. Maintain traffic on Woodland and E-9th St.
2. Close Broadway from Carnegie Ave. to E-9th St.
3. Construct footings for Piers 7-B, 8-B, and 9-B.
4. Construct East Abutments, Ramps E-1 and E-2.
5. Complete Substructure, Piers 7-B, 8-B and 9-B.
6. Construct New E-9th St. from Woodland to Broadway.
7. Andes Court to be closed when construction is started on East abutments of Ramps E-1 and E-2.
8. Provide adequate walkways on both sides of Broadway in the vicinity of pier construction.



STAGE III

1. Reroute traffic from Woodland Ave. over Stage II construction.
2. Construct embankment for Freeway and Ramps E-3 and E-4.
3. Complete substructure, superstructure, deck surfacing and remaining approach construction.
4. Provide adequate walkways on S. side of Broadway from E-9th St. to Carnegie Ave. until permanent sidewalk construction is completed.
5. Maintain traffic on Commercial Road at all times with a minimum clear pavement width of 20 ft.



STAGE II

1. Close existing E-9th between Woodland Ave. and Broadway.
2. Construct Broadway East Bound and Ramps E-1 and E-2.
3. Construct Broadway West Bound and Temporary Connection.
4. Provide adequate walkways on both sides of Woodland Ave. and S. side of Carnegie Ave. from Woodland to E-9th St. when any construction operations affecting pedestrian traffic in these areas are begun.

GENERAL**ADJACENT CONTRACTS**

IT IS ANTICIPATED THAT THE CONTRACT FOR THIS PROJECT WILL BE AWARDED DURING THE LIFE OF THE CONTRACTS FOR PART 3 AND PART 4. THE CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT THE SURFACING OF THE TWO APPROACH STRUCTURES AND THE CENTRAL VIADUCT IS INCLUDED IN THIS PROJECT. THEREFORE, IN ORDER TO FACILITATE THE WORK ON THIS PROJECT AS WELL AS THAT ON THE ADJACENT PROJECTS IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE HIS OPERATIONS WITH THE OPERATIONS OF THE CONTRACTORS ON THE ADJACENT PROJECTS.

DESIGN STANDARDS

THE DESIGN SPEED FOR THIS PROJECT IS 50 M.P.H.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE IN ACCORDANCE WITH SEC. S-0.011(b) HAVING A MINIMUM OF 500 SQ. FT. OF FLOOR SPACE. THE CONTRACTOR SHALL HAVE A TELEPHONE INSTALLED AND MAINTAINED DURING CONSTRUCTION OF THIS PROJECT.

PERMITS, LAWS AND REGULATIONS

THE CONTRACTOR SHALL SECURE, AT HIS OWN EXPENSE, ALL NECESSARY PERMITS FROM THE MUNICIPAL OR OTHER PUBLIC AUTHORITIES, SHALL GIVE ALL NOTICES REQUIRED BY LAW OR MUNICIPAL ORDINANCES, AND SHALL PAY ALL FEES AND CHARGES INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK COVERED BY THIS CONTRACT.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

UTILITY NOTE

ANY AND ALL WORK REQUIRED FOR REMOVING, RELOCATING AND CONSTRUCTION OF NEW FACILITIES FOR PRIVATE OR PUBLIC UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THE RESPECTIVE OWNERS UNLESS OTHERWISE NOTED ON THE PLANS.

WATER METER BOXES

THE CITY WATER DEPARTMENT WILL RELOCATE ALL PRIVATELY OWNED WATER METER BOXES AND THIS ITEM WILL NOT BE INCLUDED AS A PART OF THE WORK TO BE PERFORMED BY THE STATE CONTRACTOR.

WORK BY THE CITY OF CLEVELAND

THE CITY WILL PROVIDE FOR THE REMOVAL OR DISPOSAL OF ALL EXISTING BUILDINGS WITHIN THE LIMITS OF THE EASEMENT LINES TO THE TOP OF THE EXISTING FOUNDATIONS.

TRAFFIC

WHERE ANY OF THE WORK CALLED FOR UNDER THIS CONTRACT INVOLVES THE CLOSING OF EXISTING STREETS AND/OR THE RE-ROUTING OF TRAFFIC, THE CONTRACTOR FOR THIS PROJECT SHALL PROSECUTE TO THE FULLEST EXTENT THE WORK INVOLVED SO AS TO REDUCE TO A MINIMUM THE LENGTH OF TIME THAT THE STREETS CONCERNED WILL BE CLOSED TO TRAFFIC. FOR SUGGESTED SEQUENCE OF CONSTRUCTION, SEE SHEET 3.

IN ADDITION TO THE ABOVE, SECTION G-4.05 "MAINTENANCE OF LOCAL TRAFFIC" WILL BE IN FORCE DURING THE ENTIRE LIFE OF THE CONTRACT.

ATTENTION IS DIRECTED PARTICULARLY TO THE NEED FOR PROVIDING ADEQUATE FACILITIES TO ACCOMMODATE SCHOOL CHILDREN AND OTHER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUCH TEMPORARY BOARD WALKS, CINDER WALKS, HANDRAILS ADJACENT TO EXCAVATIONS, ETC. AS MAY BE NECESSARY TO ACCOMMODATE IN A REASONABLE AND SAFE MANNER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT.

ALL OF THE ABOVE ARE INCLUDED IN THE LUMP SUM BID FOR "MAINTAINING TRAFFIC".

AGGREGATE AND CALCIUM CHLORIDE ARE CARRIED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER, FOR THE MAINTENANCE OF LOCAL TRAFFIC.

GENERAL NOTES**ROADWAY****REMOVAL OF TREES AND STUMPS**

ALL TREES AND STUMPS WITHIN THE LIMITS OF THE RIGHT OF WAY SHALL BE DISPOSED OF AS SPECIFIED IN SECTION E-101.03 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

TREES SHALL NOT BE REMOVED, REGARDLESS OF SIZE, UNTIL SPECIFICALLY AND CONSPICUOUSLY MARKED BY THE ENGINEER.

PAYMENT FOR THE REMOVAL OF TREES AND STUMPS IS INCLUDED IN THE UNIT PRICE BID FOR ITEM E-101, ROADWAY EXCAVATION.

PAVEMENT REMOVAL

Removal and disposal of all existing pavement where required, except that set up for removal on the plans as Item E-8 (See detail on sheet No 9A), shall be removed and paid for as Item E-101 Roadway Excavation.

CURB TRANSITIONS

PARTICULAR CARE SHALL BE EXERCISED BY THE CONTRACTOR IN OBTAINING IN A UNIFORM MANNER THE CURB TRANSITIONS CALLED FOR ON THE PLANS.

SANDSTONE CURB RESET

ALL SALVAGEABLE SANDSTONE CURB REMOVED FOR RE-USE UNDER ITEM E-8 SHALL BE RESET. AN ESTIMATED QUANTITY OF 2402 L.I.N. FT. HAS BEEN ASSUMED TO BE SALVAGEABLE AND IS LISTED IN THE GENERAL SUMMARY.

NEW SANDSTONE CURB FURNISHED AND PLACED SHALL NOT BE INTERSPERSED WITH SALVAGED CURB.

FILL COMPACTION USING HEAVY PNEUMATIC TIRED ROLLERS

DESCRIPTION - THIS ITEM SHALL CONSIST OF COMPACTING PAVEMENT FOUNDATION OR EMBANKMENT WITH AN APPROVED PNEUMATIC TIRED ROLLER AS DIRECTED BY THE ENGINEER.

EQUIPMENT - PNEUMATIC TIRED EQUIPMENT SHALL BE OF SUCH CAPACITY THAT THE GROSS LOAD MAY BE VARIED FROM 25 TO 50 TONS. THE TOTAL LOAD SHALL BE TRANSMITTED TO THE GROUND ON FOUR PNEUMATIC TIRES SPACED EVENLY ALONG A SINGLE LINE ACROSS THE WIDTH OF THE ROLLER. THE TIRES SHALL BE SO ATTACHED TO THE BODY OF THE ROLLER THAT OSCILLATION IS POSSIBLE EITHER IN ADJACENT PAIRS OR IN EACH TIRE. THE TIRES SHALL BE CAPABLE OF OPERATING AT INFLATION PRESSURES RANGING FROM 30 TO 150 P.S.I.

CONSTRUCTION METHODS - THE AREAS SPECIFIED AND AS DIRECTED BY THE ENGINEER SHALL BE PREPARED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. E-101 PRIOR TO PERFORMING ADDITIONAL COMPACTION. PRELIMINARY ROLLING SHALL BE DONE WITH THE HEAVIEST LOAD AND HIGHEST TIRE INFLATION PRESSURE AT WHICH THE EQUIPMENT CAN BE EFFICIENTLY OPERATED. WHEN SATISFACTORY COMPACTION HAS BEEN OBTAINED UNDER THIS LOADING THE TOTAL LOAD AND TIRE PRESSURE SHALL BE INCREASED BY INCREMENTS AS DIRECTED BY THE ENGINEER UNTIL THE MAXIMUM TOTAL LOAD AND TIRE INFLATION PRESSURES ARE USED. THIS ROLLING SHALL BE CONTINUED UNTIL THE DEGREE OF COMPACTION AND STABILITY REQUIRED BY THE ENGINEER HAS BEEN OBTAINED.

IN ROLLING, ONE PASS SHALL BE TAKEN TO REPRESENT TWO TRIPS OF THE ROLLER, EACH TRIP OFFSET FROM THE OTHER THE WIDTH OF ONE TIRE TO OBTAIN COMPLETE AREA COVERAGE. THE ROLLER SHALL PROGRESS IN A SYSTEMATIC MANNER AND A RECORD SHALL BE KEPT OF THE TOTAL NUMBER OF PASSES MADE AT EACH INCREMENT OF LOADING. AS THE ROLLING PROGRESSES THE IRREGULARITIES BETWEEN TIRE MARKS SHALL BE LEVELED OFF TO FACILITATE COMPACTION AND TO PERMIT COMPLETE AREA COVERAGE BY THE TIRES. ALL LOCAL DEPRESSIONS WHICH INTERFERE WITH THE ROLLING SHALL BE FILLED WITH SELECTED BORROW MEETING SEC. E-101.02 REQUIREMENTS FOR GRANULAR MATERIAL. THE NECESSARY SELECTED BORROW SHALL BE PAID FOR AS A SEPARATE ITEM AT THE CONTRACT UNIT PRICE BID. WHEN THE CONDITION OF THE FOUNDATION IS SATISFACTORY FOR NORMAL ROLLING THE SPEED OF THE ROLLER SHALL BE NOT LESS THAN 2-1/2 MILES PER HOUR.

METHOD OF MEASUREMENT - THE QUANTITY TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF HOURS OF ROLLING TIME. NO PAYMENT WILL BE MADE FOR IDLE EQUIPMENT DUE TO REPAIRS, BAD WEATHER, WET SUBGRADE OR FOR ANY OTHER REASON. THE ACTUAL ROLLING TIME SHALL BE RECORDED TO THE NEAREST MINUTE BY THE CONTRACTOR. THIS TIME SHALL BE CHECKED DAILY BY THE ENGINEER.

BASIS OF PAYMENT - THE NUMBER OF HOURS OF ACTUAL ROLLING TIME MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER HOUR FOR ITEM SPECIAL, FILL COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, FUEL AND INCIDENTALS, INCLUDING LABOR AND EQUIPMENT NEEDED FOR SHAPING AND LEVELLING BETWEEN ROLLER PASSES, NECESSARY TO COMPLETE THIS ITEM.

NO. 2-8 INLETS, AS PER PLAN

This item shall be constructed in accordance with standard drawing I-B1 No. 2 except that the opening shall be 8'-0" in length. The number of S-5-a and V-5-b bars and the length of S-5-c, S-5-d and H-5-a bars listed on the standard drawing shall be varied as necessary to meet the requirements shown thereon.

AREA TO BE COMPACTED - THAT PORTION OF THE EXISTING MAN-MADE REFUSE FILL UNDER THE NEW PAVEMENT AND EXTENDING TO THE TOE OF THE SLOPE IN THE AREA GENERALLY EAST OF BROADWAY AND AS INDICATED ON SHEETS 24 AND 25 OF THE CONSTRUCTION PLANS SHALL BE PRECONSOLIDATED BY THE USE OF A HEAVY PNEUMATIC TIRED ROLLER AS DESCRIBED ABOVE.

THIS FOUNDATION AREA SHALL BE CLEARED AND SCALPED IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. E-101 AND THEN COMPACTED AS SPECIFIED ABOVE PRIOR TO PLACING ANY FILL OTHER THAN THAT NEEDED TO FILL RUTS, ETC. TO PERMIT EFFICIENT OPERATION OF THE ROLLER.

COMPACTION OF SOIL BACKFILL

SPECIAL CARE SHALL BE TAKEN TO PROPERLY COMPACT SOIL BACKFILL PLACED ADJACENT TO AN EXISTING PAVEMENT EDGE.

ROUNDING OF CORNERS ON CROSS SECTIONS

THE ROUNDED CORNERS, SHOWN ON STANDARD DRAWING RZ-1, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN IN THESE PLANS.

SPECIAL DITCHES

FOR SPECIAL DITCH GRADES, SEE CROSS SECTIONS AND DRAINAGE PLANS.

CONNECTIONS TO EXISTING SEWERS

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED DRAINAGE PIPE TO BE CONNECTED TO EXISTING PIPES, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE, BEFORE HE STARTS TO LAY THE PROPOSED SEWER. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE COST BID FOR ITEM 1-2 STORM SEWER.

THE CONTRACTOR SHALL SO CONDUCT HIS OPERATIONS THAT THE FLOW OF ALL EXISTING SEWERS WILL BE MAINTAINED AT ALL TIMES. ANY ADDITIONAL LABOR OR COST INVOLVED IN MAINTAINING THIS FLOW BY PUMPING OR BY ANY OTHER APPROVED METHOD WHICH IS NECESSARY FOR THE COMPLETION OF THIS PROJECT SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF STORM SEWERS, ITEM 1-2.

SEEDING AND PROTECTING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE CONSTRUCTION LIMITS AS SHOWN ON THE CROSS SECTIONS OR TO THE R/W LINE IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE CONSTRUCTION LIMITS, EXCEPT THAT ALL AREAS WHICH ARE ENTIRELY SURROUNDED BY RAMPS SHALL BE SEEDED FROM EDGE TO EDGE OF PAVED SHOULDER. ALL AREAS OUTSIDE THESE LIMITS WHERE THE VEGETATIVE GROWTH HAS BEEN INJURIOUSLY DISTURBED OR DESTROYED BY THE CONTRACTOR, SHALL BE RESTORED AND SEEDED IN ACCORDANCE WITH THE PROVISIONS OF ITEM L-9 BY THE CONTRACTOR AT HIS OWN EXPENSE.

L-9 COMMERCIAL FERTILIZER

ALL AREAS TO BE SEEDED OR SODDED SHALL HAVE COMMERCIAL FERTILIZER 12-12-12 APPLIED AT THE RATE OF TWENTY (20) POUNDS PER 1,000 SQ. FT. THE FOLLOWING SEED MIX SHALL BE USED ON ALL AREAS:

20% KENTUCKY BLUEGRASS (POA PRATENSIS)
20% KENTUCKY, 31 FESCUE (FESTUCA ELATIOR VAR KY. 31)
40% CREEPING RED FESCUE (FESTUCA RUBRA)
15% RED TOP (AGROSTIS ALBA)
5% WHITE DUTCH CLOVER (TRIFOLIUM REPENS)

UTILITIES

FOLLOWING IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF PART 5 CONSTRUCTION:

EAST OHIO GAS CO.
CITY OF CLEVELAND WATER DEPT.
CLEVELAND ELECTRIC ILLUMINATING CO.
MUNICIPAL ELECTRIC LIGHT AND POWER CO.
OHIO BELL TELEPHONE CO.
WESTERN UNION
WHITE WAY LIGHTS

OTHER NOTES

LIGHTING - SHEET 4-A AND 36

DRAINAGE - SHEET 20

STRUCTURES - SHEET 36

REPLACEMENT

All existing facilities such as pavement, curb, sidewalk, drainage structures, etc. which are to remain in place shall be protected by the Contractor. Any damage resulting from the Contractor's operations shall be repaired by him at his own expense.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(1743-18.02)

GENERAL NOTES

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42-(17.43 - 18.02)

LIGHTING NOTES

1. GENERAL

THIS SPECIFICATION SHALL SUPPLEMENT THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1937, FOR THE MATERIALS USED AND FOR THE INSTALLATION OF COMPLETE SERIES ROADWAY AND MULTIPLE UNDERDECK LIGHTING SYSTEMS FOR THE EAST APPROACH TO THE CENTRAL VIADUCT AND INTERCHANGE. THE TYPE AND LOCATION OF LIGHTS, THE CIRCUITS AND THE LOCATION OF CABLES AND CONDUITS SHALL BE AS INDICATED ON THE PLANS. THE CABLES FOR ROADWAY LIGHTS SHALL BE IN CONCRETE ENCASED FIBER OR ASBESTOS-CEMENT CONDUIT FOR THE ROADWAY LIGHTING, 15,000 LUMEN AND 10,000 LUMEN INCANDESCENT LIGHTS ARE TO BE INSTALLED WHERE AND AS INDICATED ON THE PLANS, AND ARE TO BE OPERATED ON THREE COMPLETE AND ONE PARTIAL 6.6 AMP. SERIES CIRCUITS. THE UNDERDECK LIGHTS ARE TO BE 200 WATT, AND THE FOUR DOUBLE POLE BRANCH CIRCUITS ARE TO BE IN RIGID CONDUIT, AND BALLASTS ARE TO BE INSTALLED FOR 230 VOLT SECONDARY OPERATION FROM ONE TRANSFORMER AS INDICATED ON SHEET 15.

THE CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE CLEVELAND DIVISION OF LIGHT AND POWER AND THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, BUT HE WILL NOT BE REQUIRED TO FURNISH, INSTALL OR CONNECT CONSTANT CURRENT OR MULTIPLE SERVICES, METERS, METER MOUNTS, METERING EQUIPMENT OR HOUSINGS FOR SAME. THE CONTRACTOR SHALL PROVIDE PROPER CONNECTIONS TO THE EXISTING SERIES CIRCUITS INSTALLED ON THE MAIN VIADUCT BY OTHERS.

THE CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING EQUIPMENT INCLUDING TRANSFORMER VAULT, MANHOLE, ALL LAMPS, LUMINAIRES, UNDERDECK LIGHTING FIXTURES, BALLASTS, WIRING, LUMINAIRE BRACKETS, STANDARDS, TEMPORARY WOOD POLE, EXPANSION COUPLINGS, FLEXIBLE COUPLINGS, TOPS OF POSTS (BASES FOR POLES ON STRUCTURES), POLE CAP SCREWS, CABLE, CONCRETE POLE BASES, INSULATING TRANSFORMERS, POEHEADS, CONCRETE POLE BASE BOXES, GROUNDS, ALL CONDUITS FOR PRIMARY AND LIGHTING CIRCUITS WHERE INDICATED AND ALL INCIDENTALS NECESSARY AND INDICATED FOR COMPLETE CIRCUIT INSTALLATIONS. INSTALLED, ACCEPTED AND CONNECTED FOR OPERATION. THE CLOSED TYPE LOOPS OF ALL SERIES LIGHTING CIRCUITS SHALL BE COMPLETE, AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY OPERATION OF THE CIRCUITS AND FOR THE COMPLETE OPERATION OF THE LIGHTING SYSTEMS, (EXCLUDING PRIMARY SERVICE LEADS, DISTRIBUTION TRANSFORMERS, PRIMARY ARRESTERS, PRIMARY INSULATORS, CONSTANT CURRENT REGULATORS, SECONDARY ARRESTERS, TIME CLOCKS, OIL SWITCHES, PRIMARY CONTACTORS, POWER POLES, PRIMARY FUSE CUTOUTS, AND PRIMARY CONNECTIONS TO THE POWER SOURCES) WHETHER SPECIFICALLY MENTIONED OR NOT.

THE LIGHTING INSTALLATION, WHEN COMPLETED SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE A.I.E.E. STANDARDS AND PRACTICES, AMERICAN STANDARDS, AND NATIONAL ELECTRIC MANUFACTURERS' ASSOCIATION STANDARDS, AND SHALL CONFORM TO ALL LOCAL AND SPECIAL LAWS AND ORDINANCES GOVERNING SUCH INSTALLATIONS, AND TO THE SPECIAL REQUIREMENTS HEREIN SET FORTH. SHOULD THE PLANS AND DETAIL SPECIFICATIONS BE IN CONFLICT WITH THESE REQUIREMENTS, THROUGH ERROR OR OMISSION, THE CONTRACTOR SHALL CALL SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER, AND THE CONTRACTOR SHALL MAKE THE NECESSARY CORRECTIONS IN THE INSTALLATION AS MAY BE DIRECTED BY THE ENGINEER.

INSO FAR AS PRACTICABLE, ALL MAJOR ITEMS OF ELECTRICAL EQUIPMENT SUCH AS LUMINAIRES, CABLE, POLES, INSULATING TRANSFORMERS, ETC., SHALL CONSIST OF PRODUCTS OF THE SAME MANUFACTURER IN ORDER TO SECURE SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL ELECTRICAL EQUIPMENT SHALL BE EQUAL TO THE BEST GRADE OF THAT TYPE OF EQUIPMENT AS MANUFACTURED BY THE GENERAL ELECTRIC COMPANY, THE WESTINGHOUSE ELECTRIC COMPANY, OR THE LINE MATERIAL COMPANY. REFERENCE TO ANY NAME, MAKE OR MANUFACTURER'S NUMBER FOR AN ARTICLE OF EQUIPMENT OR MATERIAL IS INTENDED TO BE DESCRIPTIVE, BUT NOT RESTRICTIVE, AND IS INTENDED TO INDICATE THE MATERIALS THAT WILL BE ACCEPTABLE.

A LAYOUT WIRING DIAGRAM SHOWING IN GENERAL THE ARRANGEMENTS AND LOCATION OF THE EQUIPMENT IS SHOWN ON THE PLANS. THIS SHALL BE CONSIDERED ONLY AS ILLUSTRATIVE AND, SUBJECT TO THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MODIFY IT AS NECESSARY FOR COMPLETE AND PROPER CONSTRUCTION AND OPERATION. THE LOCATION OF THE TRANSFORMERS, SERVICES, CONDUIT AND LUMINAIRES SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY, AND MAY BE SUBJECT TO SLIGHT SHIFTING AS THE ENGINEER MAY DIRECT IN ORDER TO CONFORM TO LOCAL CONDITIONS.

BEFORE COMMENCEMENT OF INSTALLATION OF THE ROADWAY AND UNDERDECK LIGHTING SYSTEMS, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR THE APPROVAL OF THE ENGINEER. THE SCHEDULE SHALL INCLUDE CATALOGS, CUTS, DIAGRAMS, DRAWINGS, AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED BY THE ENGINEER. IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

2. MATERIALS AND EQUIPMENT

ALL BOLTS, NUTS, STUDS, WASHERS, PINS, TERMINALS, SPRINGS, AND SIMILAR FASTENINGS AND FITTINGS SHALL BE, WHERE PRACTICABLE, OF AN APPROVED CORROSION-RESISTING MATERIAL SUCH AS BRASS OR BRONZE, OR OF A MATERIAL TREATED IN AN APPROVED MANNER TO RENDER IT ADEQUATELY RESISTANT TO CORROSION; HOT-DIP GALVANIZING WILL BE CONSIDERED SUCH APPROVED TREATMENT. ALL MATERIALS FURNISHED SHALL BE NEW, SHALL BE OF THE BEST QUALITY AND WORKMANSHIP, SHALL BE THE BEST STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THIS TYPE OF EQUIPMENT AND SHALL BE OF THE MANUFACTURER'S LATEST APPROVED DESIGN.

EACH ROADWAY LIGHTING UNIT SHALL COMPRISE A POLE WITH A 6 FT. OR 10 FT. BRACKET, A 15,000 LUMEN LUMINAIRE SIMILAR TO GENERAL ELECTRIC FORM 79-AR OR A 10,000 LUMEN LUMINAIRE SIMILAR TO WESTINGHOUSE AK-10 AS INDICATED ON SHEET 15. LUMINAIRES LIGHTING THE ROADWAY ON THE STRUCTURE, RAMPS AND STREETS SHALL MEET THE GENERAL REQUIREMENTS OF I.E.S. TYPE III OR TYPE IV DISTRIBUTION AS INDICATED.

LIGHT STANDARDS SHALL CONFORM AS NEARLY AS POSSIBLE TO THE SPECIFICATIONS HEREIN AND SHALL BE SIMILAR TO UNION METAL DESIGN NO. 70423-Y3 FOR STANDARD ON STRUCTURE, AND UNION METAL DESIGN NO. 70161-Y23 FOR STANDARDS ALONG ROADWAYS AS TO GENERAL DESIGN AND FINISH, HEIGHT, BASE, MAST ARM, DIMENSIONS AND TO METHOD OF FABRICATION. IN GENERAL, EACH STANDARD SHALL CONSIST OF A CAST STEEL ANCHOR BASE TO WHICH SHALL BE WELDED A TAPERED STEEL POLE. TO THE STEEL POLE SHALL BE FASTENED AN ORNAMENTAL POLE TOP TO WHICH SHALL BE WELDED A MAST ARM FOR SUPPORTING THE LIGHTING UNIT.

TO MOUNT LIGHT STANDARDS ON THE BRIDGE STRUCTURE A CAST STEEL ANCHOR BASE OF ADEQUATE STRENGTH AND OF THE SHAPE AND SIZE SHOWN ON SHEET NO. 110 IN THE STRUCTURAL PLANS SHALL BE SECURED TO THE LOWER END OF THE SHAFT BY MEANS OF A DOUBLE ELECTRIC WELD. TO OBTAIN THIS CONSTRUCTION, THE BASE SHALL TELESCOPE THE SHAFT, AND ONE WELD SHALL BE ON THE OUTSIDE OF THE SHAFT AT THE END OF THE SHAFT AND THE OTHER SHALL BE ON THE INSIDE AT THE TOP OF THE BASE. THE TRANSFORMER BOX FOR ALL OTHER STANDARDS SHALL BE A PART OF THE POLE BASE FOUNDATION AS INDICATED ON THE PLANS, WITH CLASS E CONCRETE USING NO. 4 AGGREGATE.

THE STEEL SHAFT OF THE LIGHTING STANDARDS FOR SINGLE LUMINAIRES SHALL BE FABRICATED FROM NOT LESS THAN NO. 11 MANUFACTURER'S STANDARD GAUGE. THE SHAFT SHALL BE FORMED AND WELDED WITH ONLY ONE LONGITUDINAL AUTOMATICALLY ELECTRICALLY WELDED JOINT AND SHALL HAVE NO HORIZONTAL JOINTS OR WELDS. THE WELD SHALL BE OF FULL PENETRATION. AFTER FORMING AND WELDING, THE TAPERED SHAFT SHALL BE COLD ROLLED OR WORKED UNDER SUFFICIENT PRESSURE TO FLATTEN OUT THE WELD, TO INCREASE THE ELASTIC LIMIT OF THE METAL IN THE COMPLETED SHAFT, AND TO PRODUCE A TRUE TAPERED TUBE WITHOUT FLAT SPOTS AND A CIRCULAR CROSS-SECTION THROUGHOUT THE LENGTH OF THE SHAFT. IF THE SHAFT IS FABRICATED BY MEANS OF A BRAKE OR OTHER PROCESS WHICH DOES NOT UTILIZE THE COLD ROLLING PRINCIPLE, IT SHALL BE FABRICATED FROM A STEEL SHEET HAVING A THICKNESS OF NO. 7 MANUFACTURER'S STANDARD GAUGE.

EACH STANDARD SHALL HAVE A MAST OR BRACKET ARM MADE OF STANDARD PIPE OF THE SIZE AND LENGTH AS SHOWN ON THE PLANS. THE INNER END OF THE BRACKET ARM SHALL BE WELDED TO A CAST STEEL HEAD BLOCK SO DESIGNED THAT THE BLOCK CAN BE BOLTED THROUGH A CAST IRON NECK PIECE TO A PLATE WELDED TO THE TOP OF THE POLE TO PERMIT RADIAL ADJUSTMENT OF THE BRACKET ARM. PROVISIONS SHALL BE MADE TO PERMIT PASSAGE OF THE CONCEALED WIRES TO BRACKET ARM. THE ORNAMENTAL CASTING WELDED TO THE OUTER END OF THE BRACKET SHALL BE ARRANGED WITH A LEVELING DEVICE OR "PLUMBIZER" FOR ADJUSTMENT OF A PENDANT LIGHTING FIXTURE AND SHALL BE TAPPED FOR 1-1/4 INCH PIPE CONNECTION. THE POLE BASE FOUNDATIONS SHALL BE CLASS #4 CONCRETE WITH 1-1/4" x 5" CADMIUM COATED STEEL ANCHOR BOLTS EXTENDED 3-1/16" ABOVE BASE WITH 4" L-BEND AT BOTTOM. EACH ROD SHALL HAVE ONE GALVANIZED AMERICAN STANDARD HEX-NUT. EACH CABLE SHALL ENTER THE STANDARD THROUGH 2-INCH FIBER CONDUIT INSTALLED IN THE CONCRETE FOUNDATION FROM TRANSFORMER POLE BASE BOX. CONDUIT SHALL EXTEND AT LEAST 3 INCHES ABOVE TOP OF FOUNDATION.

EACH STANDARD SHALL HAVE TWO 9/16 INCH HOLES PROVIDED, WHERE SHOWN ON SHEET NO. 14. PAINTING OF ALL STANDARDS ON STRUCTURES SHALL BE AS SPECIFIED UNDER PARAGRAPH 13-1-0, SHEET 36. POLES AND BRACKETS ON STRUCTURES AND ON SHOULDERS OF RAMPS SHALL BE PAINTED WITH TWO FIELD COATS OF ALUMINUM. POLES AND BRACKETS ON CITY STREETS SHALL BE PAINTED WITH TWO COATS OF DARK GREEN WEATHER RESISTING ENAMEL AS USED ON CITY STREETS. FINISH FIELD COATS SHALL BE APPLIED AFTER ERECTION.

EACH LUMINAIRE SHALL CONSIST OF A SUPPORTING HOOD, AND EXTERNAL BODY OR CASING, MAIN REFLECTOR, AND A REFRACTOR GLOBE. THE HOOD SHALL BE MADE OF CAST ALUMINUM AND SHALL BE TAPPED FOR 1-1/4" STANDARD PIPE. THE EXTERNAL BODY OR CASING SHALL BE MADE OF CAST ALUMINUM AND SHALL BE FIRMLY ATTACHED TO THE HOOD BY MEANS OF ADEQUATE SCREWS OR BOLTS. THE MAIN REFLECTOR SHALL BE MADE OF HEAVY GAUGE ALUMINUM SHEET, ALZAK FINISHED AND POLISHED. THE ENTIRE REFLECTING ELEMENT SHALL BE RIGIDLY ATTACHED TO THE EXTERNAL BODY BY MEANS OF SCREWS OR BOLTS.

THE GLOBES SHALL BE SUPPLIED WITH A NON-RUSTING METAL SUPPORTING RING OR BAND WITH CLAMPS AROUND THE RIM OR FLANGE OF THE GLOBE. THE SUPPORTING RING SHALL BE SO DESIGNED THAT BROKEN GLOBES CAN BE REPLACED AT THE LAMP LOCATION WITH THE USE OF SIMPLE HAND TOOLS. ALL SCREWS, NUTS, WASHERS, ETC., WHICH MUST BE REMOVED IN ORDER TO REPLACE A BROKEN GLOBE SHALL BE NON-FERROUS AND CORROSION-PROOF. THE GLOBE SUPPORTING RING SHALL BE ATTACHED TO THE REFLECTOR BY MEANS OF A HINGE OR ITS EQUIVALENT ON ONE SIDE AND A LATCH, THUMB SCREW, OR EQUIVALENT ON THE OPPOSITE SIDE. THESE DEVICES SHALL BE SO DESIGNED THAT WITH THE GLOBE IN PLACE, THE LATCH OR THUMB SCREW CAN BE RELEASED BY HAND, THE GLOBE SWINGING DOWN AND THEN LIFTED OFF THE HINGE SO THAT THE GLOBE CAN BE WASHED SEPARATELY FROM THE FIXTURE. THE DESIGN SHALL BE SUCH THAT AFTER WASHING, THE GLOBE CAN BE HOOKED ON TO THE HINGE AND THEN PUSHED UP INTO PLACE AGAINST THE GASKET WITH ONE HAND WHILE THE LATCH OR THUMB SCREW IS TIGHTENED WITH THE OTHER HAND. THE BEST DESIGN SHALL BE THAT WHICH COMBINES SIMPLICITY AND EASE OF OPERATION WITH THE MOST EFFECTIVE SEAL BETWEEN THE GLASS GLOBE AND THE REFLECTOR. FIXTURES HAVING THE REFLECTOR PERMANENTLY ATTACHED OR "SPUN ON" TO THE GLASS GLOBE WILL NOT BE ACCEPTED. A SKELETON TYPE MOGUL MULTIPLE SOCKET SHALL BE MOUNTED IN THE HOOD AND SHALL BE SUITABLE FOR 10,000 OR 15,000 LUMEN, 20 AMPERE LAMPS. THE LUMINAIRES SHALL PRODUCE AN I.E.S. TYPE IV LIGHT DISTRIBUTION CURVE EQUAL TO THE CURVE PRODUCED BY THE GENERAL ELECTRIC FORM 79-AR OR AN I.E.S. TYPE 111 PRODUCED BY WESTINGHOUSE AK-10, AS REQUIRED.

LAMPS FOR UNDERDECK LUMINAIRES SHALL BE 100 WATT, FLUORESCENT 1 AMP, CW/RS, AND FOR ROADWAY UPRIGHT LUMINAIRES SHALL BE 10,000 LUMEN OR 15,000 LUMEN, 2000 HOUR LAMPS FOR REGULAR REPLACEMENT, PS-40 BULBS, MOGUL BASE, AS INDICATED ON SHEET NO. 15.

EXTERNAL PARTS OF ALL LUMINAIRES SHALL BE FINISHED ALUMINUM. GASKETS USED FOR SEALING THE JOINT BETWEEN GLOBES AND REFLECTORS OR CASINGS SHALL BE PERFORMED CORK OR FELT AND SHALL BE CEMENTED IN PLACE. THE FIXTURES AS SPECIFIED ARE PRECISION OPTICAL DEVICES AND IN ORDER TO DELIVER THE PERFORMANCE REQUIRED THEY MUST HAVE THE LAMP FILAMENT CORRECTLY LOCATED WITH REFERENCE TO THE REFLECTING OR REFRACTING ELEMENTS. THE SOCKETS SHALL PREFERABLY BE SOLIDLY MOUNTED, WITH THE LAMP FILAMENT AT THE CORRECT OPTICAL CENTER. IF THE MANUFACTURER'S DESIGN PROVIDES FOR VERTICAL ADJUSTMENT OF THE SOCKET, HE SHALL FURNISH A DRAWING SHOWING THE PROPER DIMENSIONS TO SOME CONVENIENT REFERENCE POINT, SUCH AS THE LOWER EDGE OF THE REFLECTOR OR CASING, SO THAT THE PURCHASER CAN MAKE A GAUGE TO BE USED FOR ACCURATELY SETTING AND LOCKING THE SOCKETS. REFRACTING GLOBES SHALL PREFERABLY BE KEVED TO THE SUPPORTING REFLECTOR SO THAT THEY CANNOT BE PLACED IN ANY OTHER THAN THE CORRECT ANGULAR LOCATION. IN ANY EVENT, THE GLOBES MUST BE PLAINLY MARKED TO INDICATE THE "STREET SIDE" AND THE "HOUSE" OR "SIDEWALK SIDE". ALL LAMPS USED IN THESE FIXTURES WILL BE STANDARD 20 AMPERE, BASE U MAZDA TYPE WITH MOGUL BASES AND 7 INCH LIGHT CENTERS.

LAMP SOCKETS USED IN ENCLOSED FIXTURES OF THE TYPES SPECIFIED ARE SUBJECTED TO HIGH TEMPERATURES AND THE SOCKETS FURNISHED SHALL BE FOR HEAVY DUTY AND SHALL INCORPORATE ALL THE LATEST DESIGN FEATURES AVAILABLE SUCH AS CENTER SPRING LOADED CONTACTS, PLATED PARTS AND EXTRA HEAVY CAST TERMINALS TO REDUCE THE POSSIBILITY OF CONTACT TROUBLES AND WELDING OF THE LAMP BASE TO THE SOCKET SHELL; EACH FIXTURE SHALL PREFERABLY BE COMPLETELY ASSEMBLED AT THE FACTORY AND SHIPPED IN A SINGLE CONTAINER AS A COMPLETE UNIT.

ALL OF THE SERIES STREET LIGHTING INSULATING TRANSFORMERS WILL BE CONNECTED WITH THEIR PRIMARY WINDINGS IN A 6.6 AMPERE, 60 CYCLE REGULATED CIRCUIT, AND SHALL BE LOCATED EITHER IN CONCRETE POLE BASE BOXES OR IN PARAPET JUNCTION BOXES. TRANSFORMERS FOR LIGHTING UNITS ON RAMPS, ROADWAYS AND LANES SHALL BE LOCATED IN THE POLE BASE BOX OF EACH POLE. THE SECONDARY OF THE 10,000/15,000 LUMEN TRANSFORMERS WILL SUPPLY 20 AMPERES TO ONE LAMP RATED 10,000 OR 15,000 LUMENS. WHEN THE LAMP WATTAGE VARIES BETWEEN 80 ABOVE AND 20% BELOW NORMAL, THE SECONDARY OR LAMP CURRENT SHALL NOT VARY MORE THAN 1% FROM 20 AMPERES WITH 6.6 AMPERES AT 60 CYCLES SUPPLIED TO THE PRIMARY WINDING. EACH TRANSFORMER SHALL BE GIVEN A DIELECTRIC TEST BY THE MANUFACTURER AND SHALL WITHSTAND 22,000 VOLTS BETWEEN PRIMARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER AND 1,500 VOLTS BETWEEN THE SECONDARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER. BOTH OF THE ABOVE TESTS SHALL BE APPLIED FOR ONE MINUTE, WITHOUT FAILURE. THE STREET LIGHTING TRANSFORMERS SHALL BE FOR POLE BASE MOUNTING WITH TAPING SLEEVES SIMILAR TO G.E. CAT. NO. 95A62 WHICH WILL BE THE CRITERION IN JUDGING THE ADEQUACY OF THE TYPE PROPOSED BY THE CONTRACTOR. INDIVIDUAL TRANSFORMERS SHALL BE FURNISHED FOR EACH LIGHT.

EACH TRANSFORMER SHALL BE SUPPLIED WITH A NON-CORROSIVE NAME PLATE SHOWING THE FOLLOWING DATA: MAKER'S NAME AND STYLE OR CATALOG NUMBER, RATING IN LUMENS, PRIMARY CURRENT, SECONDARY CURRENT, AND FREQUENCY.

ALL CONDUITS, CABLES AND CONNECTIONS SHALL BE FURNISHED AND INSTALLED TO CONNECT THE EXISTING SERIES CIRCUITS ON THE MAIN VIADUCT TO THE NEW SERIES CIRCUITS TO BE INSTALLED UNDER THIS CONTRACT, AS INDICATED ON SHEET 15.

CONDUCTORS FOR ROADWAY LIGHTING SHALL BE TWO SINGLE NO. 8 AWG SOLID SOFT DRAWN COPPER OF NOT LESS THAN 98% CONDUCTIVITY AND SHALL BE COATED WITH LEAD, TIN, OR ANTIMONY ALLOY. INSULATION SHALL CONSIST OF 10/64 INCH OF POLYVINYL CHLORIDE COMPOUND MADE IN ACCORDANCE WITH A.S.T.M. SPEC. D-734. ALL CONDUITS SHALL BE PLACED IN CONDUIT.

CABLE TO BE INSTALLED FROM THE SECONDARY TAPS OF THE ISOLATING TRANSFORMERS TO THE BRACKET LAMP STANDARD SHALL BE NO. 8 AWG, SINGLE CONDUCTORS, 600 V. CABLE. INSULATION SHALL CONSIST OF 1/64 INCH OF RUBBER OR RUBBER LIKE COMPOUND KNOWN COMMERCIALY AS OZONE RESISTANT INSULATION WITH AN OUTSIDE JACKET OR SHEATH OF NEOPRENE, 1/64 INCH THICK.

ASBESTOS WIRE TO BE INSTALLED WITHIN THE BRACKET AT LAMP STANDARD TO LAMP SOCKET SHALL BE NO. 8 AWG SINGLE CONDUCTOR, SOLID. INSULATION SHALL BE ASBESTOS APPLIED TO THE CONDUCTOR TO FORM A CONTINUOUS TUBE OF ASBESTOS FIBRES AT LEAST 40 MILS THICK TIGHTLY COMPRESSED AND IMPREGNATED WITH A FLAME, HEAT AND MOISTURE-PROOF COMPOUND, AND AN OUTER ASBESTOS BRAID AT LEAST 45 MILS THICK.

THE JUNCTION BOXES AT EACH ROADWAY LIGHTING UNIT ON STRUCTURE FOR BRANCHES TO LIGHTS FROM THE 2-INCH OR 3-INCH LONGITUDINAL CONDUIT RUNS SHALL BE WATERTIGHT AND SUITABLY ATTACHED IN PARAPETS WHERE INDICATED. BRASS OR MONEL SCREWS SHALL HOLD COVER TIGHTLY. THE FINISH INSIDE SHALL BE HOT-DIP GALVANIZING. BOXES SHALL BE SIZE 24 INCH BY 12 INCH BY 9 INCH, WITH NO LUGS. SEE SHEET 111 FOR DETAIL OF WELDED SHEET METAL JUNCTION BOX.

CONDUCTORS IN PARAPETS OF BRIDGE SHALL BE IN ASBESTOS CEMENT CONDUIT CONFORMING TO SUPPLEMENTAL SPECIFICATION NO. M-206-14 OR IN FIBER CONDUIT EQUIVALENT TO ORANBURG CONCRETE. THE CONDUITS SHALL BE 2-INCH OR 3-INCH INSIDE DIAMETER AND BE PLACED AS SHOWN ON SHEET 111

UNDERDECK LUMINAIRES SHALL BE EQUAL TO LINE MATERIAL NO. 65 5000 C-1 WITH TWO 1-AMP, STREET LIGHTING, RAPID START FLUORESCENT LAMP, PRE-HEATED CATHODE, CAT. NO. 100T12-CW-RS, COMPLETE WITH 230 VOLT AC MULTIPLE BALLASTS. THE JUNCTION BOX FOR EACH UNDERDECK LUMINAIRE SHALL BE CAST IRON, WATERTIGHT, AND EQUAL TO O.Z. TYPE YH CAT. NO. 06603.

RIGID METAL CONDUIT FOR UNDERDECK LIGHTS SHALL BE 3/4 OR 2-INCH AS INDICATED, AND NATIONAL "SHERARDUCT" OR AN APPROVED EQUIVALENT. THIS CONDUIT SHALL BE FURNISHED WITH TAPERED, THREADED FITTINGS AS REQUIRED. RIGID METAL CONDUITS BETWEEN BRANCH CIRCUIT JUNCTION BOXES SHALL BE 2-INCH, AS SHOWN ON PLANS.

THE CIRCUIT CONDUCTORS IN CONDUIT FOR THE 220 VOLT MULTIPLE CIRCUITS TO THE UNDERDECK LIGHTING UNITS SHALL BE TWO NO. 1/0 OR NO. 12 AWG, AS SPECIFIED ON SHEET NO. 15. BRANCH CONDUCTORS TO FIXTURES SHALL BE NO. 12 AWG, 600 V., STRANDED. THE CONDUCTORS SHALL BE CONTINUOUS FROM BOX TO BOX, AND NO SPLICES SHALL BE MADE EXCEPT WITHIN JUNCTION BOXES. THE CONDUCTORS SHALL HAVE 3/64 INCH RUBBER INSULATION AND 1/64 INCH NEOPRENE JACKET.

3. CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC SAFETY CODE SHALL BE MAINTAINED. ALL WIRING TO UNDERDECK LIGHTS IS TO BE PLACED IN RIGID METAL CONDUIT FASTENED BY SUITABLE CLAMPS.

POLES SHALL BE CAREFULLY SET, THEY SHALL BE RAKED AS SHOWN ON SHEET 14 AND THE LUMINAIRES SHALL BE SUPPORTED WITH BRACKETS ABOUT 28'-0" ABOVE PAVEMENT AS INDICATED. THE CAREFUL ALIGNING AND GRADING OF POLES IS CONSIDERED TO BE AN ESSENTIAL FEATURE OF THE INSTALLATION. THE WORK SHALL BE AS NEARLY PERFECT AS PRACTICABLE, AND NO PERCEPTIBLE TOLERANCES WILL BE PERMITTED. IN ORDER TO ACCOMPLISH THE DESIRED PERFECTION OF ALIGNMENT OF THE LUMINAIRES, THE POLES SHALL BE CAREFULLY ALIGNED AND WELDED IN PLACE, OR ALIGNED BY SHIMS AS REQUIRED.

THE INSTALLATION OF ALL LUMINAIRES AND WIRING SHALL CONFORM TO THE RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURERS AND THE PRACTICE OF THE POWER COMPANY. CABLE ENDS AT THE LUMINAIRE SHALL BE REINFORCED BACK SIX INCHES FROM THE ENDS BY WRAPPING WITH GLASS TAPE, AND COVERING WITH CLEAR INSULATING LACQUER.

CABLES SHALL BE INSTALLED IN CONTINUOUS LENGTHS WITHOUT SPLICES, FROM TERMINAL TO TERMINAL. AT THE TERMINALS, CABLE SHALL BE SPLICED TO THE EQUIPMENT LEADS IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED. CARE SHALL BE TAKEN TO INSURE WATERTIGHT JOINTS. SPLICES MAY BE MADE IN CONCRETE PULL BOXES.

SPLICES SHALL NOT BE MADE IN CONDUITS. SPLICES OF CONDUCTORS SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE BY USING FOUR SCREW COPPER CONNECTORS AND WRAPPING IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE CABLE SO THAT THE INSULATION AND THE MECHANICAL AND ELECTRICAL QUALITIES OF THE SPLICES SHALL BE EQUAL TO THAT OF THE REMAINDER OF THE CONDUCTOR. TAPE OF THE SAME COMPOSITION AS THE CABLE INSULATION OR SCOTCH BRAND TAPE SHALL BE USED.

CONDUITS SHALL BE FIRMLY CLAMPED TO THE STRUCTURES TO PREVENT RATTLING, SHALL BE RUN IN LINES PARALLEL AND PERPENDICULAR TO LINES OF STRUCTURES AND SHALL BE SO PLACED THAT DIRT WILL NOT ACCUMULATE AROUND THEM. SUPPORTS SHALL BE AT NOT MORE THAN 6 FT. CENTERS. THERE SHALL BE AT LEAST ONE INCH CLEARANCE BETWEEN CONDUITS. IF ON A HORIZONTAL SURFACE FOR OVER ONE FOOT, THEY SHALL CLEAR THE SURFACE BY AT LEAST THREE INCHES. ADEQUATE APPROVED PROVISION FOR THE MOVEMENT OF CONDUITS SHALL BE MADE WHEREVER CONDUITS CROSS EXPANSION OR FIXED JOINTS IN THE SUPPORTING STRUCTURES WHERE ASBESTOS CEMENT CONDUIT IS ON THE STRUCTURES. ONE FACTORY EXPANSION COUPLING WITH RUBBER RING SHALL BE USED AT EXPANSION JOINTS. RIGID CONDUIT ACROSS EXPANSION JOINTS WHERE USED SHALL HAVE AN EXPANSION COUPLING SIMILAR TO O.Z. TYPE EX OR AX AS REQUIRED, COMPLETE WITH BONDING JUMPER, OR BE IN FLEXIBLE COUPLINGS EQUAL TO CROUSE-HINDS TYPE EC.

ALL PARTS OF THE SUPERSTRUCTURE STEELWORK AND THE CONDUIT AND EQUIPMENT FOR THE LIGHTING SYSTEMS ON STRUCTURE SHALL BE THOROUGHLY GROUNDED AT PIER SHAFTS. THE CONTRACTOR WILL EMBE IN THE CONCRETE OF THE PIER SHAFTS A NO. 0 SOLID COPPER WIRE BRAZED AT ITS LOWER END TO A STEEL CONCRETE PILE CASING, AND AT ITS UPPER END AS PROVIDED BY NOTE B SHEET 36 TO PROVIDE FOR CONVENIENT SPLICING AND EXTENSION. AT EACH SUCH PIER SHAFT THE GRIDERS SHALL BE GROUNDED BY A NO. 6 COPPER WIRE BOLTED OR BRAZED TO THE BOTTOM FLANGE AND TO THE BOTTOM CASTING OF THE SHOE, AND CARRIED TO CONNECTION WITH THE GROUND WIRE EXTENDING TO THE FOUNDATION PILE. ACROSS ALL ROADWAY EXPANSION JOINTS THERE SHALL BE PROVIDED A NO. 6 STRANDED THINNED COPPER WIRE SUITABLY LOOPED TO ALLOW FOR EXPANSION OF THE STEELWORK, AND CONNECTED TO EACH SIDE OF THE EXPANSION JOINT BY BOLTING OR BRAZING SO AS TO PROVIDE AN EFFECTIVE ELECTRICAL CONNECTION FOR GROUNDING THE ENTIRE STRUCTURAL STEELWORK. CONDUIT AND EQUIPMENT SECURELY ATTACHED TO SUPERSTRUCTURE STEELWORK REQUIRES NO FURTHER GROUNDING.

4. TESTS

THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND APPLIANCES NECESSARY TO TEST THE COMPLETED CABLE SYSTEMS. A BURNING TEST WILL BE REQUIRED FOR THE LIGHTS. IN ADDITION, THE CITY OF CLEVELAND WILL MAKE A "MEGGER" TEST OF ALL CIRCUITS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DEMONSTRATE TO THE SATISFACTION OF THE DIRECTOR OF HIGHWAYS THAT ALL LIGHTING CIRCUITS ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND UNSPECIFIED GROUNDS, THAT ALL CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS AND THAT THE RESISTANCE TO GROUND OF NON-GROUNDED SERIES CIRCUITS IS NOT LESS THAN 50,000 OHMS AND PARALLEL UNGROUNDED CIRCUITS IS NOT LESS THAN 100,000 OHMS.

5. PAYMENT FOR ROADWAY AND UNDERDECK LIGHTING

PAYMENT FOR THE ROADWAY AND UNDERDECK LIGHTING SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEMS AS INDICATED IN THE SCHEDULE OF QUANTITIES, WHICH PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK, INSTALLED AND IN OPERATING CONDITION, ACCORDING TO THE PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

- A. "15,000 LUMEN LUMINAIRE AND INSULATING TRANSFORMER", PER EACH AND SHALL INCLUDE LAMP, GLOBE, REFLECTOR, REFRACTOR, LAMP RECEPTACLE, CORROSION RESISTANT FITTINGS, LATCHES, SAFETY CHAIN, GASKETS AND INSULATING TRANSFORMER.
- B. "10,000 LUMEN LUMINAIRE AND INSULATING TRANSFORMER", PER EACH AND SHALL INCLUDE ALL FEATURES SPECIFIED FOR 15,000 LUMEN LUMINAIRE, ITEM A.
- C. "STANDARD, 6-FOOT BRACKET", PER EACH AND SHALL INCLUDE POLE FOR 28-FOOT MOUNTING HEIGHT, BRACKET ATTACHMENTS, 6-FOOT STEEL BRACKET, SPECIAL POLE BASE CASTING FOR ATTACHING TO HANDRAIL, END KNOB WITH PLUMBIZER AND PIPE NIPPLE, SINGLE CONDUCTOR NO. 8 AWG, 600 VOLT POLE AND BRACKET CABLE, ALL CONNECTIONS AND SPLICING, SCREWS, BOLTS, NUTS, WASHERS AND ALL MODIFICATIONS.
- D. "STANDARD, 10-FOOT BRACKET", PER EACH AND SHALL INCLUDE ALL FEATURES SPECIFIED FOR "STANDARD, 6-FOOT BRACKET", EXCLUDING THE SPECIAL POLE BASE CASTING, AND THE 6-FOOT BRACKET AND SUBSTITUTING THE 10-FOOT STEEL BRACKET, FURNISHING ANCHOR BOLTS AND SHIMS, GROUT ON BASE AFTER POLE IS SET AND PLUMB, ANCHOR BASE, REINFORCED HAND-HOLE, LOCKING DEVICE FOR HAND-HOLE, AND LEAF COVERS.
- E. "STANDARD, 10-FOOT DUPLEX BRACKET", PER EACH AND SHALL INCLUDE TWO 10-FOOT BRACKETS, ATTACHMENTS FOR TWO BRACKETS AND INCLUDING ALL FEATURES SPECIFIED FOR "STANDARD, 10-FOOT BRACKET", ITEM D.
- F. "CONCRETE POLE BASE", PER EACH AND SHALL INCLUDE CONCRETE POLE BASE BOX, EXCAVATIONS, FORMS, CONCRETE, REINFORCING STEEL, SETTING ANCHOR BOLTS, 2-INCH CONDUIT THRU BASE TO BOX FOR WIRING, BACKFILLING, TAMPING, REMOVING WASTE, 90-DEGREE BENDS, GALVANIZED COUPLINGS, PIPE NIPPLES, INSULATING BUSHINGS, CONDUIT STUBS THRU POLE BASE BOX WALLS FOR CONTINUOUS RUNS, AND CONDUIT STUBS AND PLUGGING.
- G. "PULL BOXES, CONCRETE", PER EACH AND SHALL INCLUDE EXCAVATION, FORMS, CONCRETE, REINFORCING STEEL, CONDUIT STUBS THRU WALLS, BACKFILLING, TAMPING AND REMOVING WASTE.
- H. "NO. 8 AWG, 5 KV SINGLE CONDUCTOR LIGHTING CABLE", PER LINEAL FOOT AND SHALL INCLUDE ONE SINGLE CONDUCTOR CABLE IN DUCTS AND JUNCTION BOXES, SPLICING, TERMINALS, CONNECTIONS AND TESTING. MEASUREMENT FOR CABLE SHALL BE THE LENGTH OF EACH SINGLE CABLE RUN TIMES THE NUMBER OF CABLES IN EACH CONDUIT.
- I. "2-INCH DUCT", PER LINEAL FOOT AND SHALL INCLUDE EXCAVATION & BACKFILL FOR CONCRETE, CONCRETE, END BELLS, PLUGGING DUCTS, CONDITIONING DUCTS, NO. 9 AWG GALVANIZED IRON PULL-IN WIRE, AND SEALING AROUND DUCTS WHERE THEY ENTER MANHOLES OR VAULTS. MEASUREMENT FOR DUCTS SHALL BE THE LENGTH OF EACH SINGLE DUCT RUN, TIMES THE NUMBER OF DUCTS IN EACH RUN.
- J. "4-INCH DUCT", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES REQUIRED FOR "2-INCH DUCT", ITEM I, EXCEPT USING 4-INCH DUCT.
- K. "WOOD POLE", PER EACH AND SHALL INCLUDE EXCAVATION, 35-FOOT CLASS 4 POLE, TREATMENT, SETTING, BACKFILLING, TAMPING, PLUMBING, INSTALLATION, POEHEAD FOR 2-CONDUCTOR CABLE, 80 FEET OF 2-INCH I.D. GALVANIZED RIGID CONDUIT, WRAPPING UNDERGROUND PORTION, FITTINGS, STRAPS, GALVANIZED PIPE COUPLINGS, AND FASTENINGS. TREATMENT AS PER SEC. M-B.4.
- L. "FLUORESCENT UNDERDECK LIGHT", PER EACH AND SHALL INCLUDE FIXTURE, 2 LAMPS, 230 VOLT DUAL, HIGH POWER FACTOR, LOW STARTING TEMPERATURE BALLAST, BRACKETS, SUPPORT WHERE REQUIRED, GROUNDING FIXTURE, 6" x 6" x 3" JUNCTION BOX, FIXTURE WIRE FROM BALLAST TO FIXTURE, CONNECTION FROM JUNCTION BOX TO FIXTURE, ALL CONNECTIONS TO BALLAST, 3/4-INCH I.D. VINYL JACKETED, FLEXIBLE CONDUIT, FITTINGS, MOUNTING LUGS AND FASTENINGS.
- M. "SERVICE PANEL", PER EACH AND SHALL INCLUDE 32-INCH BY 12 INCH BY 10 INCH STEEL JUNCTION BOX, SAFETY SWITCH, CONTACTOR, PHOTO-CELL CONTROL UNIT, MOUNTINGS, GROUND FOR CONDUIT AND STRUCTURE, ALL INTER-CONNECTING CONDUITS, ALL EXTRA WIRING AND CABLE NOT SPECIFICALLY CALLED FOR, 30 FEET OF 4-INCH I.D. GALVANIZED RIGID CONDUIT FOR CONNECTION BETWEEN 4-INCH I.D. DUCT AND JUNCTION BOX, ALL CONNECTIONS, TERMINALS, SPLICES, CONDUIT ADAPTERS, LOCK-NUTS, INSULATING BUSHINGS, MOUNTING BOLTS, NUTS, WASHERS AND SPACERS.
- N. "JUNCTION BOX", PER EACH AND SHALL INCLUDE 8" x 8" x 4" JUNCTION BOX, COVER, GASKET, ATTACHMENTS, FITTINGS, FASTENINGS, CONDUIT CONNECTIONS, AND A SEPARATELY ENCLOSED CIRCUIT BREAKER.
- O. "SERVICE FOR UNDERDECK LIGHTING", PER LINEAL FOOT AND SHALL INCLUDE ONE RUN OF NO. 1/0 AWG, TYPE RH-RW, SINGLE CONDUCTOR CABLE IN DUCT FROM MANHOLE TO JUNCTION BOX AND ONE RUN OF NO. 1/0 AWG, TYPE RH-RW, SINGLE CONDUCTOR CABLE IN 2-INCH GALVANIZED CONDUIT, ALL CONNECTIONS, TERMINALS, SPLICING AND TESTING. MEASUREMENT FOR CABLE SHALL BE THE LENGTH OF EACH SINGLE CABLE RUN TIMES THE NUMBER OF CABLES IN EACH CONDUIT, CENTERLINE OF MANHOLE TO CENTERLINE OF BOX.
- P. "2-INCH RIGID, GALVANIZED CONDUIT", PER LINEAL FOOT AND SHALL INCLUDE COUPLINGS, FITTINGS, FASTENINGS, ATTACHMENTS, LOCKNUTS AND INSULATING BUSHINGS.
- Q. "3/4-INCH RIGID GALVANIZED CONDUIT", PER LINEAL FOOT AND SHALL INCLUDE ALL FEATURES AND ITEMS SPECIFIED FOR "2-INCH RIGID GALVANIZED CONDUIT", ITEM O, EXCEPT FOR 3/4-INCH CONDUIT IN LIEU OF 2-INCH, AND SHALL INCLUDE ALL NO. 12 AWG BRANCH CIRCUIT WIRING.
- R. "REGULATOR VAULT", PER EACH AND SHALL INCLUDE REQUIRED EXCAVATION, FORMS, REINFORCING STEEL, CONCRETE, MANHOLE FRAMES AND COVERS, BOLTS AND FASTENINGS FOR HOLDING MANHOLE FRAMES DOWN, CAST-IRON DRAIN AND GRATING, LIGHTING, DUCTS, END BELLS, VENTILATION COMPLETE WITH VENT CAP, FASTENINGS, FITTINGS AND STRAPS; CONDUIT CONNECTIONS TO 5 FT BY 8 FT MANHOLE, GROUNDING OF VAULT, WATERPROOFING, BACKFILLING, TAMPING, COMPACTING AND REMOVAL OF WASTE.
- S. "MANHOLE", PER EACH AND SHALL INCLUDE REQUIRED EXCAVATION FOR 5 FT BY 8 FT MANHOLE, FORMS, REINFORCING STEEL, CONCRETE, MANHOLE FRAMES AND COVERS, BOLTS AND FASTENINGS FOR HOLDING MANHOLE FRAME DOWN, END-BELLS FOR DUCTS, PULLING IRONS, CONNECTIONS, TERMINALS, SPLICING, BACKFILLING, TAMPING, COMPACTING, REMOVAL OF WASTE, CAST-IRON DRAIN AND GRATING, AND WATERPROOFING, CABLE HANGERS.

OTHER NOTES
See Viaduct plan sheets 36 and 37 for lighting notes and S-25 items integral with structures.

EARTHWORK QUANTITIES

ITEM	QUANTITY
Total Excavation	44,878
**Total Pavement Removal	3,000
Total Embankment	74,061
Total Embankment x1.15	85,170
Total Borrow	37,292

UNMODIFIED

FEB 23 1938

TYPE CODE 7221

** Existing pavement removed to be used in embankment

GENERAL SUMMARY ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
QUANTITIES

ITEM NO.	FREEWAY	RAMPS				BROADWAY		STREETS					GENERAL	CODE 7221	* CITY	TOTAL	ITEM NO.	UNIT	DESCRIPTION		
		E-1	E-2	E-3	E-4	EASTBOUND	WESTBOUND	E-9th	CARNEGIE	WOODLAND	COMMERCIAL	DECATUR CT.								EDWARDS CT.	E-9th PL.
PAVEMENT																					
B-33	566	116	201	505	700											2088	2088	B-33	Sq. Yd.	3" Bituminous Macadam Base Course	
I-7	257	81	55	76												469	469	I-7	Sq. Yd.	Reinforced Concrete Approach Slabs (T-13")	
I-11	245	111	136	362	264	445	483	446								2492	2492	I-11	Lin. Ft.	Sandstone Curb Reset	
I-11	654	296	363	963	701	1185	1285	1186								6633	6633	I-11	Lin. Ft.	6"x18" Sandstone curb, as per plan	
I-12						201	597	756								1554	1554	I-12	Lin. Ft.	Standard Type 2A Concrete Curb	
I-18	81	15	27	65	90											278	278	I-18	Cu. Yd.	Stabilized Crushed Aggregate Shoulders and Approaches	
I-21	103															245	245	I-21	Sq. Yd.	Concrete Median Pavement, Standard Type I	
I-22	703	74	101	261	224		2,354	687								4404	4,404	I-22	Cu. Yd.	Subbase	
T-30	193	41	70	177	245											731	731	T-30	Gal.	Bituminous Prime Coat, Sec. M 5.7 RT-2 or RT-3, or Sec. M 5.3, MC-0 or MC-1	
T-31	283	58	101	253	350											1045	1045	T-31	Gal.	Bituminous Surface Treatment Bituminous Material, as per plan	
T-31	5	1	2	4	6											18	18	T-31	Cu. Yd.	Bituminous Surface Treatment No. 6 Aggregate	
T-31	5	1	2	4	6											18	18	T-31	Cu. Yd.	Bituminous Surface Treatment No. 46 Aggregate	
T-70						458	1,709	2,198								4365	4,365	T-70	Sq. Yd.	3" Portland Cement Concrete Pavement	
T-71	2915	817	635	2188	1933	4,518	5,232	1,600								19838	19,838	T-71	Sq. Yd.	9" Reinforced Portland Cement Concrete Pavement	
ROADWAY																					
E-101	22,060	684	251	737	483		11,212	7,904								1547	14,878	E-101	Cu. Yd.	Roadway Excavation, as per plan.	
E-101	3,738	1,014	891	2,769	2,633	4,976	6,941	3,798								26760	26,760	E-101	Sq. Yd.	Compacted Subgrade	
E-4																37,292	37,292	E-4	Cu. Yd.	Borrow	
E-4																500	500	E-4	Cu. Yd.	Borrow, using Granular Material, as per plan.	
E-8						7,696	1,512	220	3,427							13,661	13,661	E-8	Sq. Yd.	Removal and Disposal of Existing Pavement, as per plan.	
E-8						1,292	440	287	1,026							3,045	3,045	E-8	Lin. Ft.	Removal and Disposal of Existing Curb (Sandstone)	
E-8						1,058	360	235	839							2,492	2,492	E-8	Lin. Ft.	Removal for Reuse of Existing curb (sandstone)	
E-11																554	554	E-11	M. Gal.	Water	
I-8																2	2	I-8	Ea.	Monument Assembly, Standard.	
I-8																2	2	I-8	Ea.	Monument bases, Standard.	
I-13		1,522	916	4,400		3,385	2,588	8,230								22,241	22,241	I-13	Sq. Ft.	4" Portland Cement Concrete Sidewalk, as per plan	
I-15	362.5		62.5	750	812.5	12.5	375									2,037.5	2,037.5	I-15	Lin. Ft.	Guard Rail, Steel Beam, Standard Type (Deep), as per Standard Drawing I-15 NO. 2-B.	
L-9	3,262	876	1,998	2,996	4,265		10,408	3,433								12,586	13,824	L-9	Sq. Yd.	Seeding and Protecting, as per plan	
L-9																3,606	3,606	L-9	Ton	Commercial Fertilizer (12-12-12)	
L-10		94														94	94	L-10	Sq. Yd.	Sodding	
L-10		20	57	80												157	157	L-10	Sq. Yd.	Sodding, including 2" galvanized wire mesh, as per plan	
M-10																1	1	M-10	Ton	Calcium Chloride Furnished and Applied for Maintaining Traffic	
T-10																50	50	T-10	Cu. Yd.	Traffic Compacted Surface Course for Maintaining Traffic	
Special																100	100	Special	Hours	Fill Compaction Using Heavy Pneumatic Tired Roller	
S-25	30 *			1 *			1 *	1 *									33	33	S-25	Each	15,000 Lumen Luminaire and Insulating Transformer, as per plan.
S-25		9 *	10 *	9 *	10 *	12 *	11 *	8 *									69	69	S-25	Each	10,000 Lumen Luminaire and Insulating Transformer, as per plan.
S-25	23	6	5																S-25	Each	(Lamp Standards, 6' Bracket, as per plan. To Bridge Sheet 37)
S-25	7	3	5	10	10	11 *	11 *	9 *								35	31	65	S-25	Each	Lamp Standards, 10' Bracket, as per plan.
S-25						1 *											1	1	S-25	Each	Lamp Standard, 10' Double Bracket, as per plan.
S-25	7	3	5	10	10	12 *	11 *	9 *								35	32	67	S-25	Each	Concrete Pole Base, as per plan.
S-25	1			2	1	2 *	4 *	1 *								4	7	11	S-25	Each	Pull Boxes, Concrete, as per plan.
S-25	3,000 *	1,550 *	1,550 *	3,800 *	1,750 *	2,400 *	2,250 *	2,100 *								23,400	23,400	S-25	Lin. Ft.	#8AWG, 5KV, Single Conductor Lighting Cable, as per plan.	
S-25	800	350	550	2,200	850	1,450 *	1,300 *	2,000 *								2038	7,462	9,500	S-25	Lin. Ft.	2" Duct, Concrete Encased, as per plan.
S-25				900			350 *									200	1,050	1,250	S-25	Lin. Ft.	4" Duct, Concrete Encased, as per plan.

* 100% City Participation.

Est. 1200 Sq. Ft. of 4" Concrete Sidewalk for replacement of existing sidewalk along Commercial Road adjacent to pier No 1-B.

Structure over 20 Ft Span
For Quantities Bridge No. CUY-42-18.02 See Sheet 37

MICROFILMED
FEB 23 1993

GENERAL SUMMARY ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
QUANTITIES

ITEM NO.	FREEWAY	RAMPS				BROADWAY		STREETS						GENERAL CODE 7221	CITY	TOTAL	ITEM NO.	UNIT	DESCRIPTION		
		E-1	E-2	E-3	E-4	EASTBOUND	WESTBOUND	E-9TH	CARNEGIE	WOODLAND	ANDES CT.	DECATUR CT.	EDWARDS CT.							E-9TH PL.	
ROADWAY (cont'd.)																					
S-25																1	1	S-25	Each	Wood Pole, as per plan.	
S-25						36 *										36	36	S-25	Each	Fluorescent Underdeck Lights, as per plan.	
S-25						1 *										1	1	S-25	Each	Service Panel, as per plan.	
S-25						4 *										4	4	S-25	Each	Junction Boxes, as per plan.	
S-25						1200 *										1200	1200	S-25	Lin. Ft.	Service for Underdeck Lighting, as per plan.	
S-25						200 *										200	200	S-25	Lin. Ft.	2" Rigid Galvanized Conduit, as per plan.	
S-25						550 *										550	550	S-25	Lin. Ft.	2" Rigid Galvanized Conduit, as per plan.	
S-25				1 *												1	1	S-25	Each	Regulator Vault, as per plan.	
S-25																1	1	S-25	Each	Manhole (5'x 6'), as per plan.	
Special	2															1	1	Special	Each	Single Pole Overhead Sign Assembly, Type "A" B=18'	
Special						1										1	1	Special	Each	Bridge Type Overhead Sign Assembly, Type "A" 65' Span	
Special																lump	lump	Special	lump	Construction Layout Stakes.	
DRAINAGE																					
I-2		42	68	155	52	47										376	376	I-2	Lin. Ft.	12" Class A Storm Sewers	
I-2																121	121	I-2	Lin. Ft.	12" Class A Storm Sewers Under Pavement or Approaches, Sec. M.6.5(b) or M-6.8(b)	
I-2	185	50	17													290	290	I-2	Lin. Ft.	12" Class B Storm Sewers	
I-2	95															95	95	I-2	Lin. Ft.	12" Class B Storm Sewers, Sec. M-6.6.(b)	
I-2	283	38	30	72		149	166	183	90							1011	1011	I-2	Lin. Ft.	12" Class B Storm Sewers Under Pavement or Approaches	
I-2		40				156	181	136								513	513	I-2	Lin. Ft.	15" Class B Storm Sewers Under Pavement or Approaches	
I-2					35											35	35	I-2	Lin. Ft.	18" Class A Storm Sewers Under Pavement or Approaches, Sec. M.6.5(b) or M.6.8(b)	
I-2								104	227							331	331	I-2	Lin. Ft.	18" Class B Storm Sewers Under Pavement or Approaches	
I-2				30 *				60 *								90	90	I-2	Lin. Ft.	6" Class B Storm Sewers, Sec. M-6.8(b).	
I-4	94	418	702	1254	1731	701	568	600								6,068	6,068	I-4	Lin. Ft.	8" Underdrains	
I-8	1	2	1	4	1	1										10	10	I-8	Each	Standard No. 2-2-A Catch Basins	
I-8					1											1	1	I-8	Each	Standard No. 2-4 Catch Basin, Modified as per plan	
I-8	4	2	1	2			1	2	1							13	13	I-8	Each	Standard No. 2-6 Inlets	
I-8			1			3	3	3								10	10	I-8	Each	Standard No. 2-8 Inlets, as per plan.	
I-8						1	2									3	3	I-8	Each	Standard No. 2-10 Inlets	
I-8			1			1										2	2	I-8	Each	Standard No. 1 Manholes, Modified as per plan.	
I-8	1															1	1	I-8	Each	Standard No. 2 Manhole, Modified as per plan, with Drop Pipe	
I-8	1															1	1	I-8	Each	Standard No. 2 Manhole, Modified as per plan, without Drop Pipe	
I-8				1		2										3	# 3	I-8	Each	Manholes Adjusted to grade	
I-8																2	2	I-8	Each	Manhole Frames and Covers, Furnished and Placed, as per plan.	
I-14																70	70	I-14	Lin. Ft.	Standard Type 1 Paved Gutter	
I-16	1					1										2	2	I-16	Each	Manholes Abandoned, as per plan.	
I-16	1			1	3	5	2	2	2							16	16	I-16	Each	Inlets and Catch Basins Abandoned.	
E-12	20															20	20	E-12	Lin. Ft.	Pipe Removed, over 15', as per plan.	
																		<i>Lump Sum Construction Layout Stakes</i>			

* 100% City Participation.

All Manholes adjusted to grade are on Storm or Combination Type Sewers.

RECORDED
FEB 23 1953

TYPE T-71

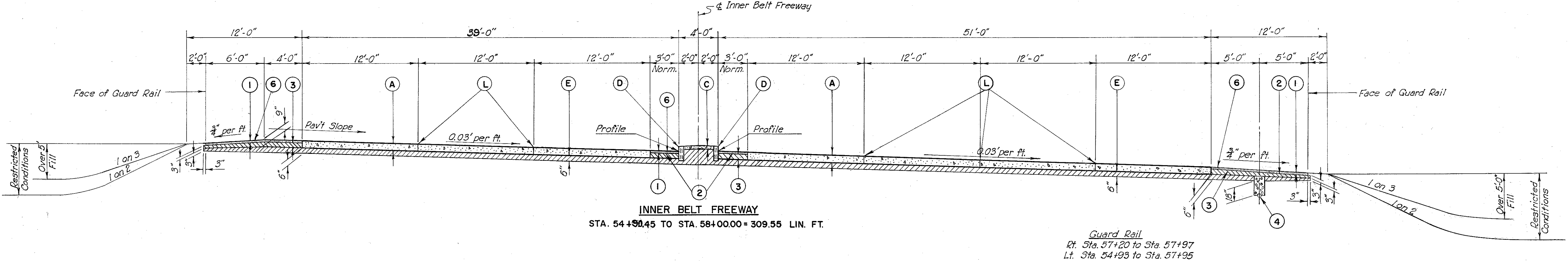
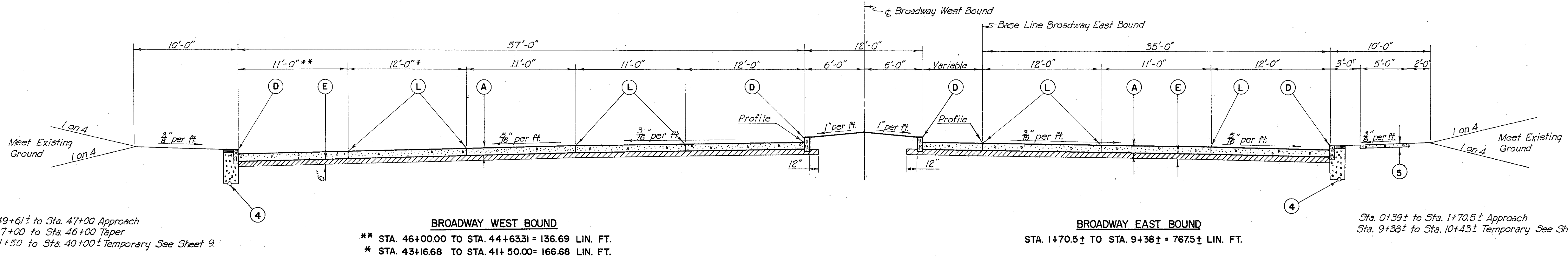
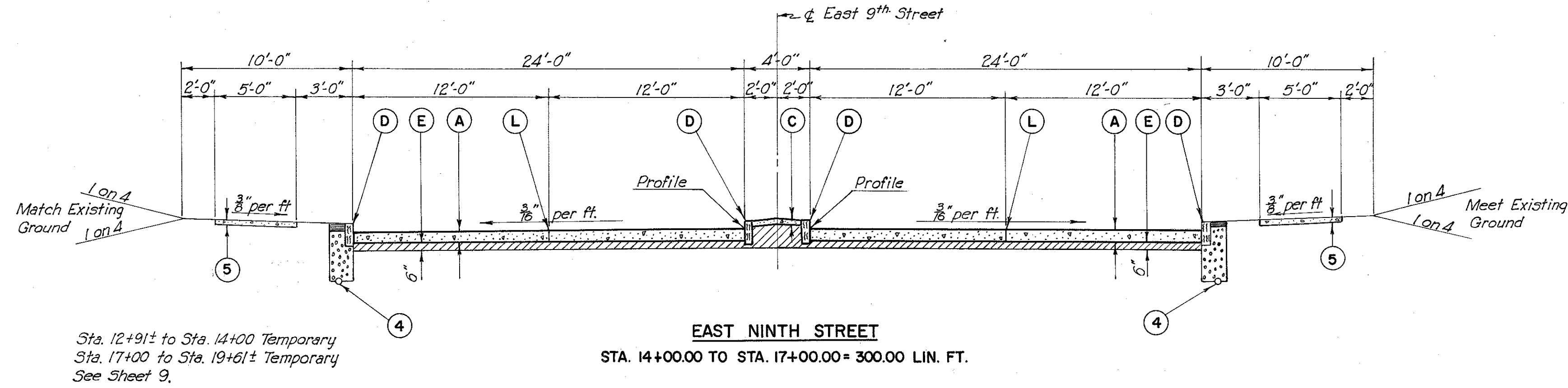
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
TYPICAL CROSS SECTIONS

LEGEND

- (A) 9" Reinforced Portland Cement Concrete Pavement, Item T-71
- (B) Standard Type 2-A Concrete Curb, Item I-12
- (C) Standard Type I Median Pavement, Item I-21
- (D) 6" x 18" Sandstone Curb, Item I-11
- (E) Subbase, Item I-22
- (L) Standard Longitudinal Joint
- (1) 3" Bituminous Macadam Base Course, Item B-33
- (2) Bituminous Prime Coat, Item T-30, Sec. M.5.7 RT-2 or RT-3 or Sec. M.5.3 MC-0 or MC-1 applied at rate of 0.35 gal. per sq. yd.
- (3) Stabilized Crushed Aggregate Shoulder, Item I-18
- (4) 6" Underdrain, For details of trench see Detail T Sheet 13.
- (5) 4" Portland Cement Concrete Sidewalk, Item I-13
- (6) Seal Coat, Item T-31, placed in two applications (See note in Proposal.)



UNRECORDED
FEB 23 1958

TYPE T-71 AND T-70

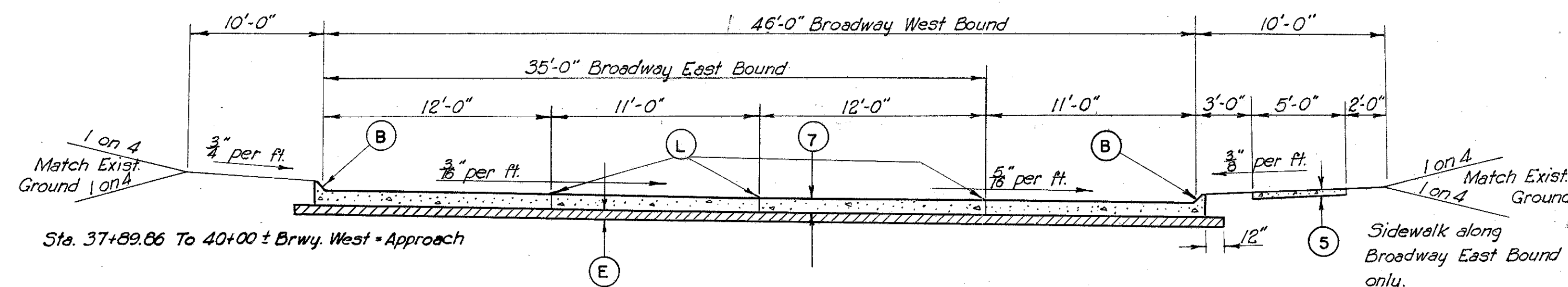
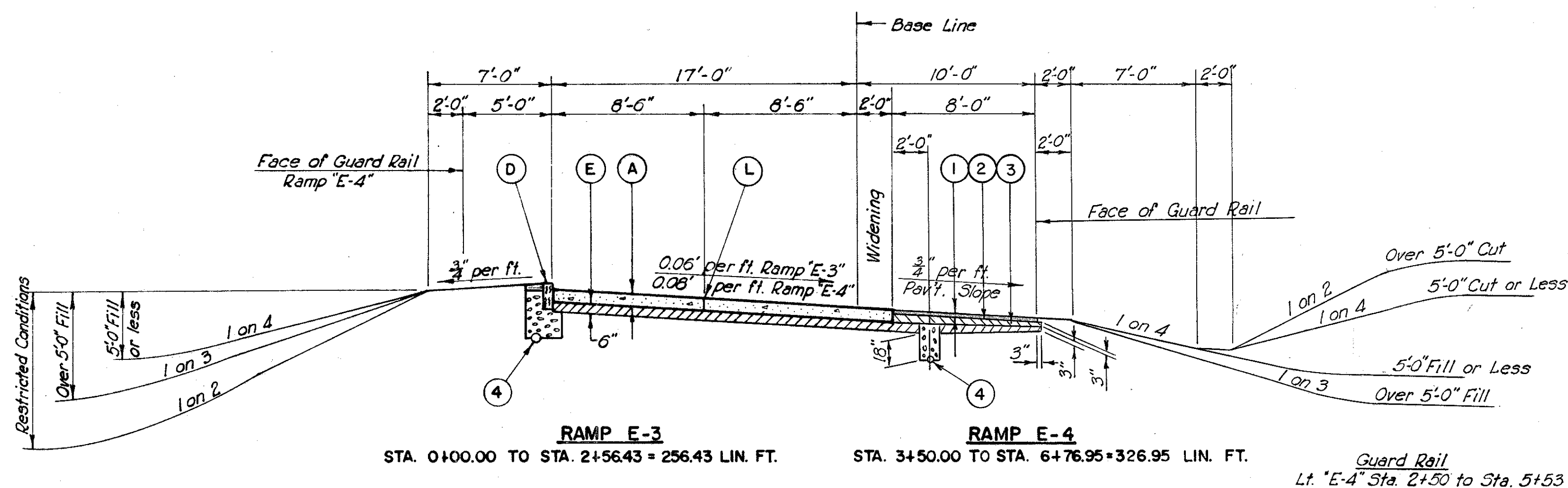
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	8
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

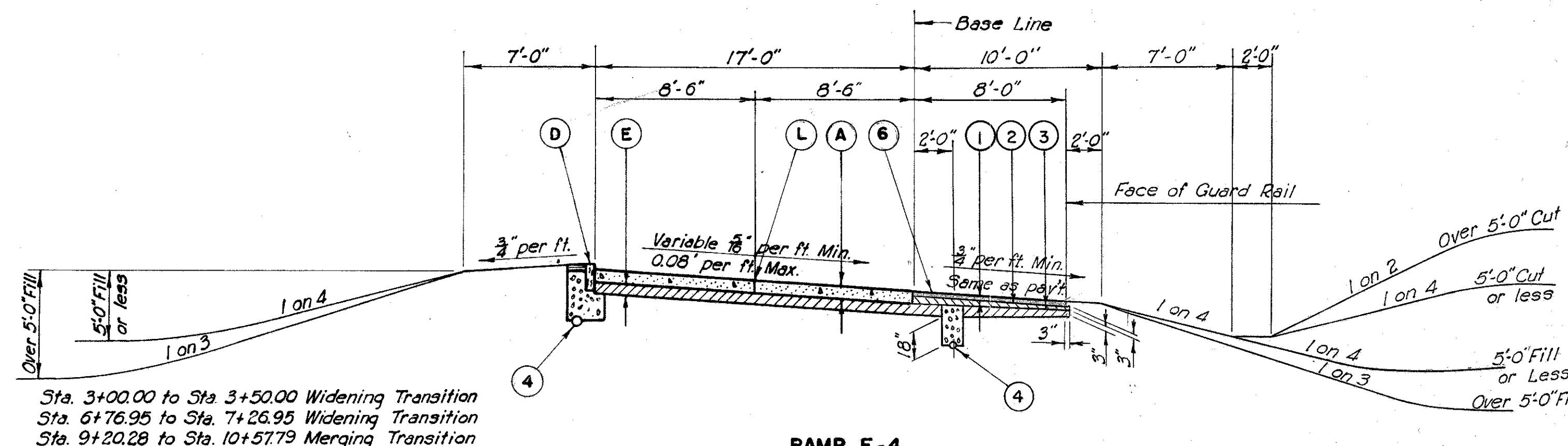
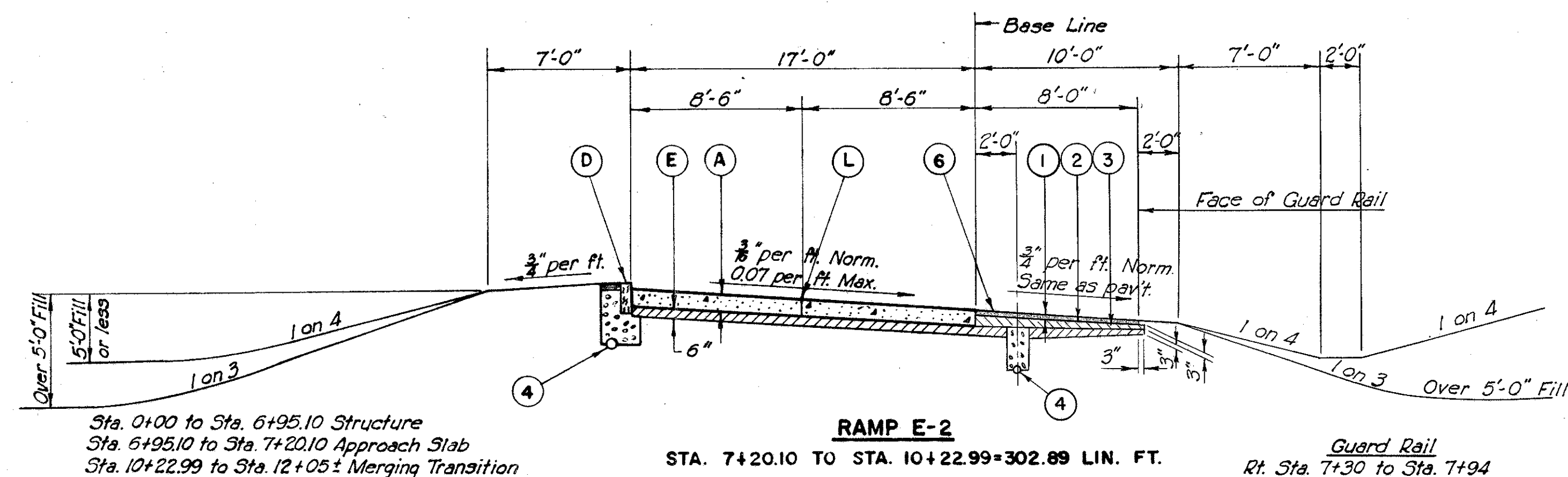
TYPICAL CROSS SECTIONS
RAMPS

LEGEND

For Legend See Sheet 7
⑦ 9" Portland Cement Concrete Pavement, Item T-70

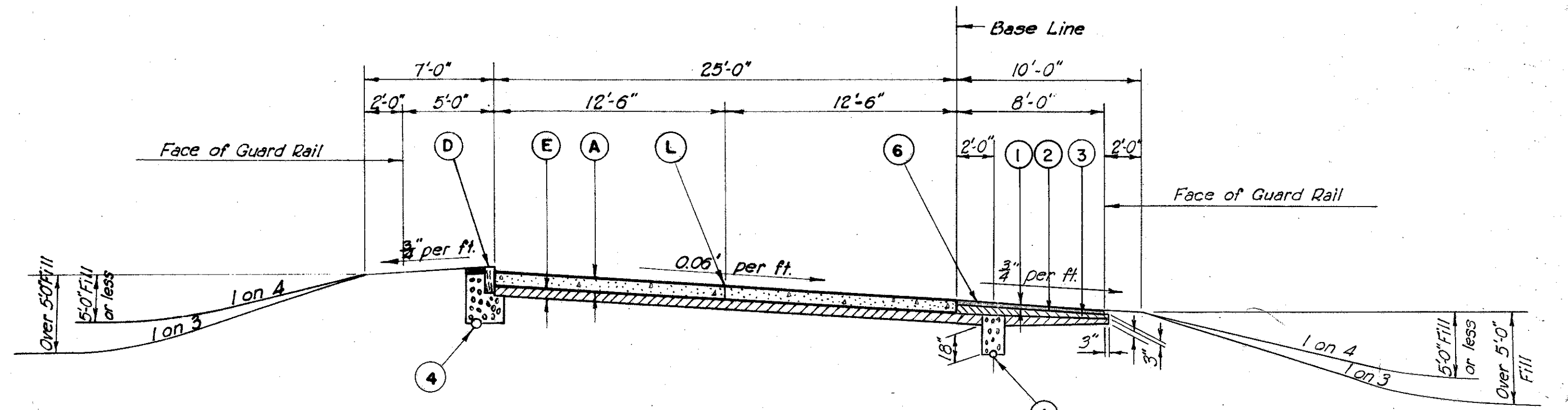
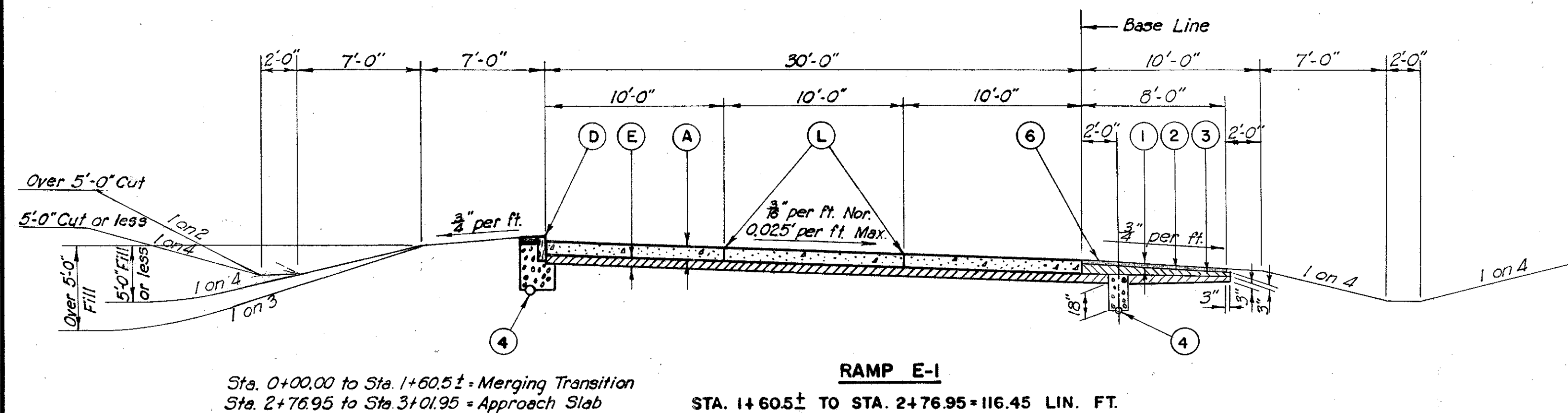


TEMPORARY PAVEMENT
BROADWAY WESTBOUND—STA. 40+00± TO STA. 41+50± 150± LIN. FT.
BROADWAY EASTBOUND—STA. 9+38± TO STA. 10+43± 105± LIN. FT.
E-9TH STREET—FOR CROWN, WIDTH, AND LIMITS SEE SHEETS 7 & 9



Sta. 0+00 to Sta. 6+95.10 Structure
Sta. 6+95.10 to Sta. 7+20.10 Approach Slab
Sta. 10+22.99 to Sta. 12+05± Merging Transition

Sta. 3+00.00 to Sta. 3+50.00 Widening Transition
Sta. 6+76.95 to Sta. 7+26.95 Widening Transition
Sta. 9+20.28 to Sta. 10+57.79 Merging Transition

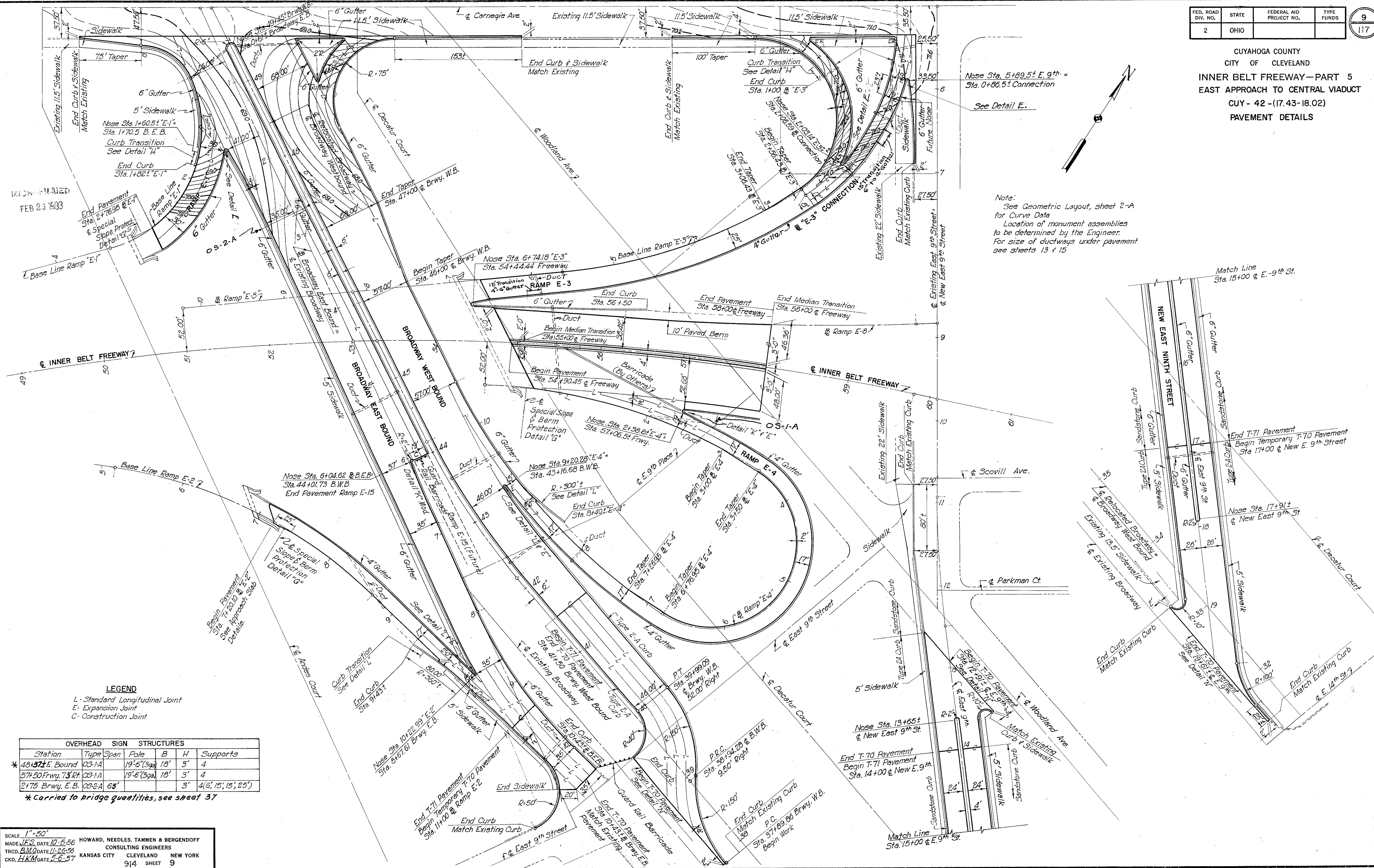


Sta. 0+00.00 to Sta. 1+60.5± Merging Transition
Sta. 2+76.95 to Sta. 3+01.95 Approach Slab

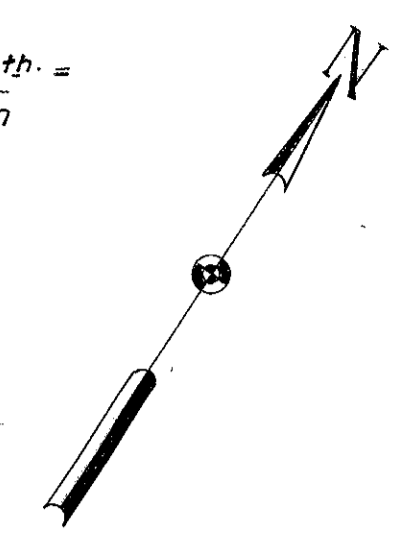
Sta. 2+56.43 to Sta. 3+06.43 Widening Transition
Sta. 6+61.50 to Sta. 6+86.50 Approach Slab

SCALE 3/16" = 1'-0"
MADE BY HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. B.M. DATE 12-13-56 CONSULTING ENGINEERS
CKD. J.E.S. DATE 5-3-57 KANSAS CITY CLEVELAND NEW YORK
914 SHEET 8

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
PAVEMENT DETAILS



Note:
See Geometric Layout, sheet 2-A for Curve Data
Location of monument assemblies to be determined by the Engineer.
For size of ductways under pavement see sheets 13 & 15



LEGEND
L - Standard Longitudinal Joint
E - Expansion Joint
C - Construction Joint

OVERHEAD SIGN STRUCTURES						
Station	Type	Span	Pole	B	H	Supports
* 48+37.5 E. Bound	OS-1A	19'-5"	(3ga)	18'	3'	4
57+50 Frwy. 73' RT.	OS-1A	19'-5"	(3ga)	18'	3'	4
2+75 Brwy. E.B.	OS-2A	65'			3'	4(6', 15', 15', 25')

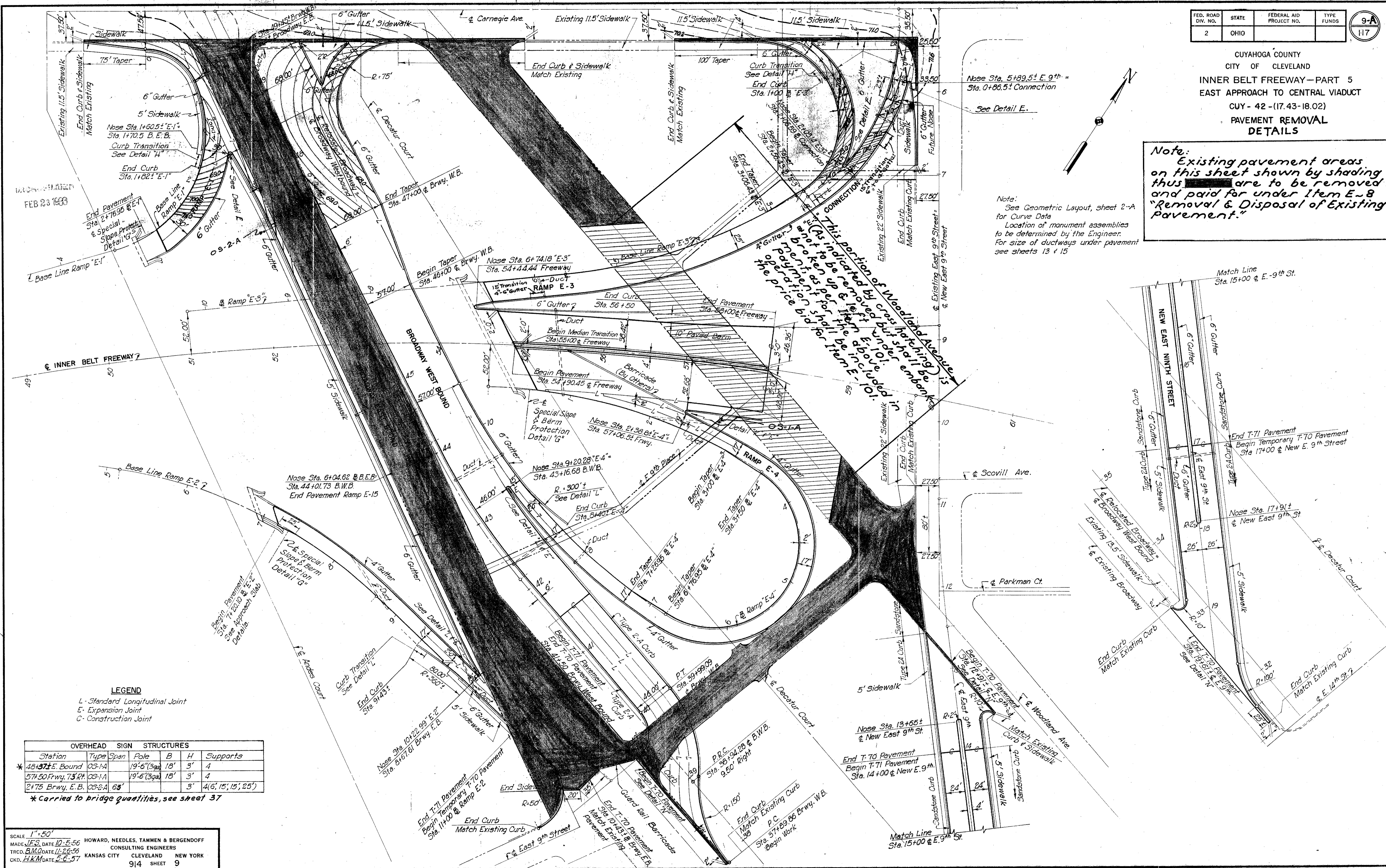
* Carried to bridge quantities, see sheet 37

SCALE 1"=50'
MADE I.E.S. DATE 10-5-56 HOWARD, NEEDLES, TAMMEN & BERGENOFF
TRCD. B.M.O. DATE 11-26-56 CONSULTING ENGINEERS
CKD. H.K.M. DATE 2-6-57 KANSAS CITY CLEVELAND NEW YORK
914 SHEET 9

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
PAVEMENT REMOVAL
DETAILS

Note:
Existing pavement areas on this sheet shown by shading thus are to be removed and paid for under Item E-8 "Removal & Disposal of Existing Pavement."

Note:
See Geometric Layout, sheet 2-A for Curve Data
Location of monument assemblies to be determined by the Engineer.
For size of ductways under pavement see sheets 13 & 15



DATE: FEB 23 1958

LEGEND
L - Standard Longitudinal Joint
E - Expansion Joint
C - Construction Joint

OVERHEAD SIGN STRUCTURES					
Station	Type	Span	Pole	B	H
* 46+37± E. Bound	OS-1A	19'-6"	18'	3'	4'
57+50 Frwy, T3' RT	OS-1A	19'-6"	18'	3'	4'
2+75 Brwy, E.B.	OS-2A	65'	3'	4'	(6', 15', 15', 25')

* Carried to Bridge Quantities, see sheet 37

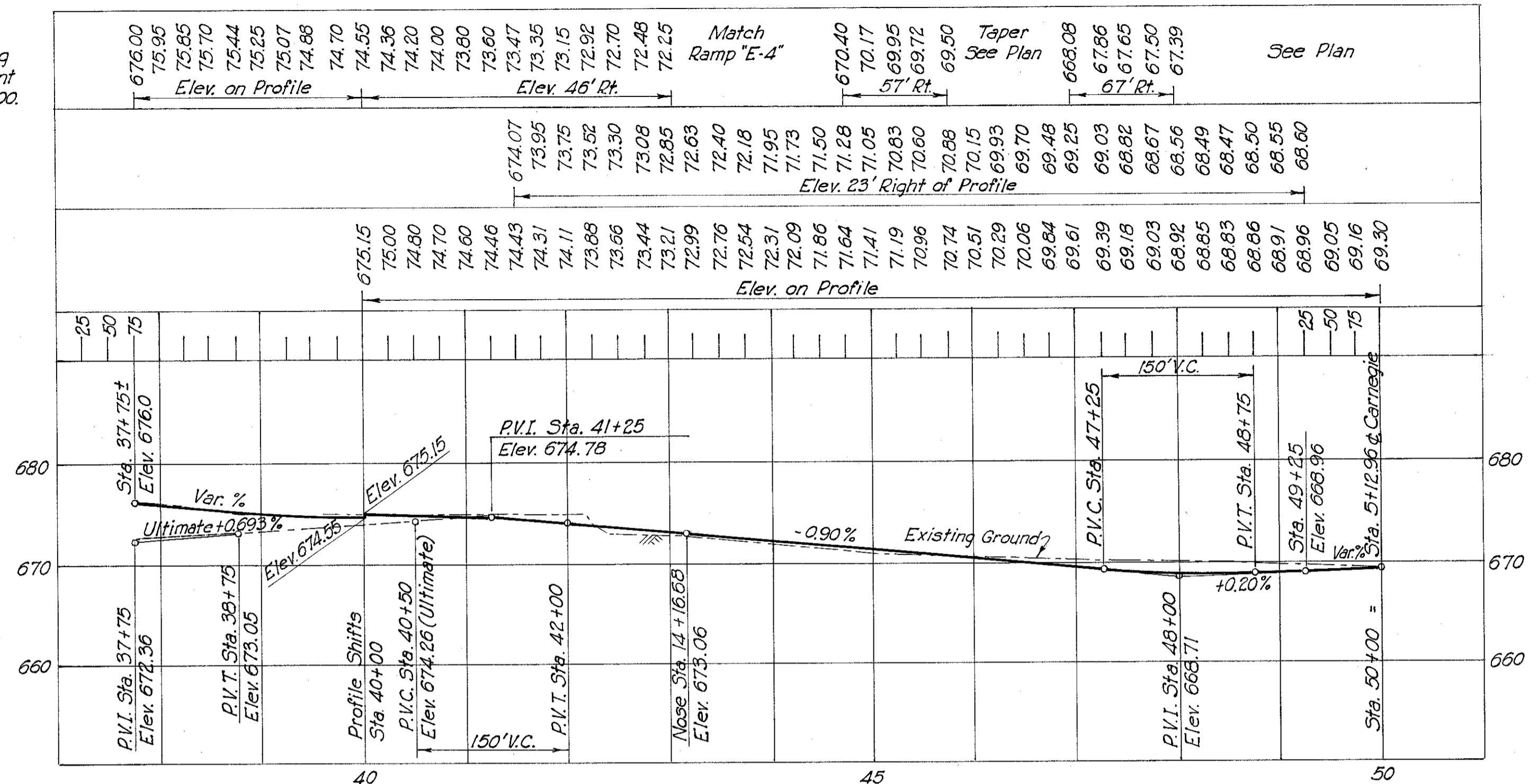
MICROFILMED
FEB 23 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

10
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
PROFILES - STREETS

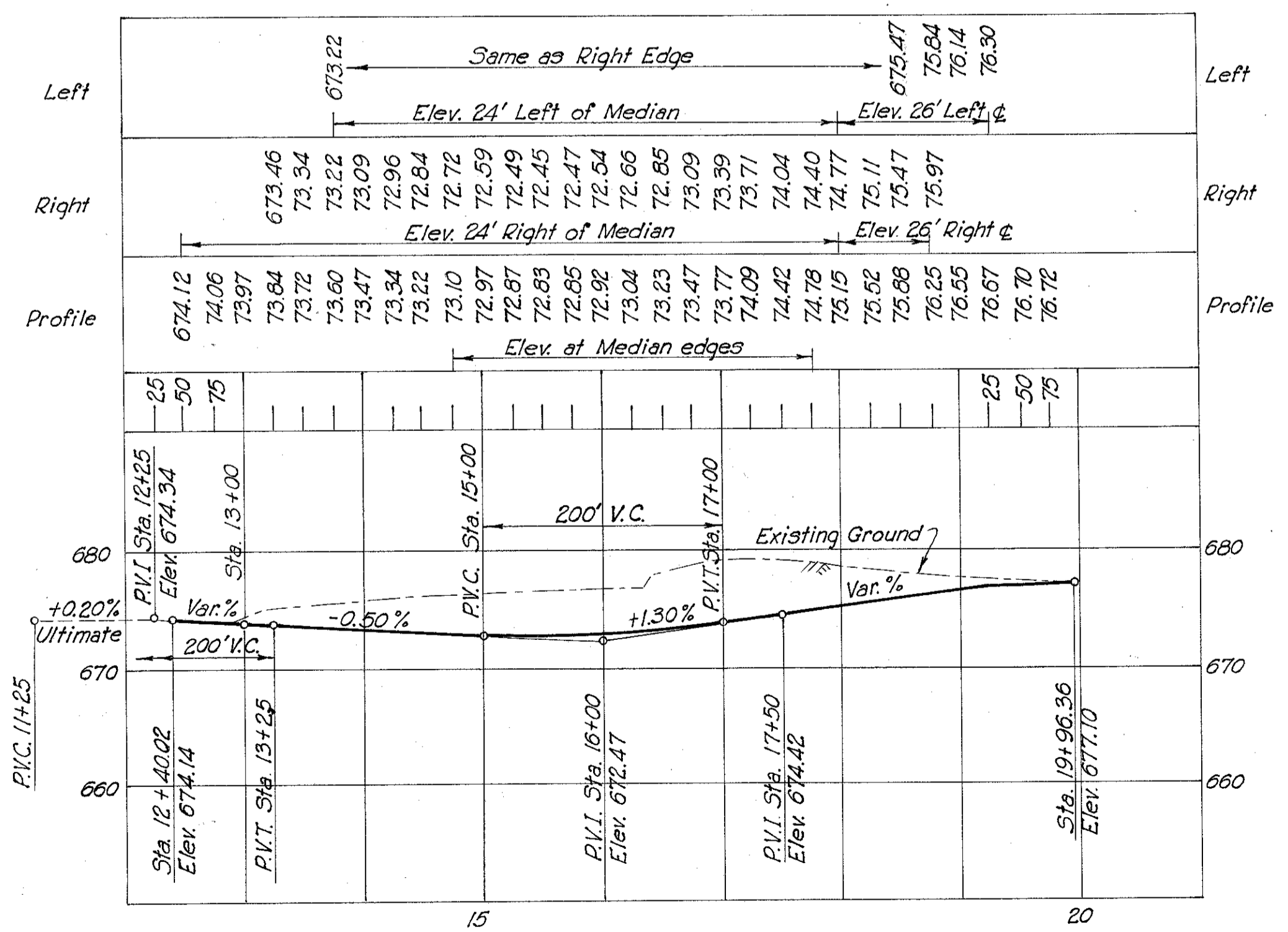
Note:
Stationing is along
North Edge of Pavement
Sta. 37+75 to Sta. 40+00.



BROADWAY WESTBOUND

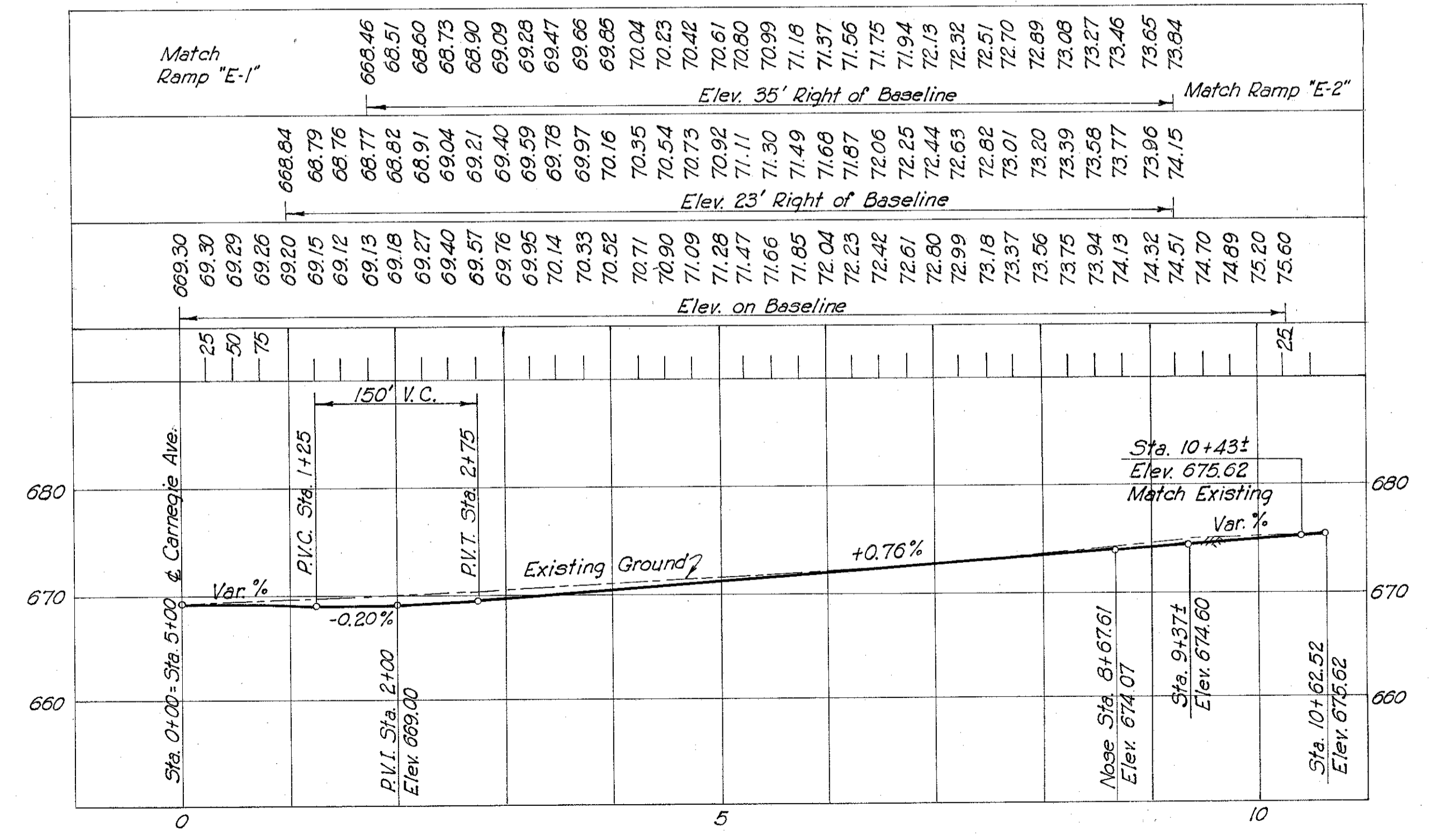
Note: Profile grade carried
on median edge.

Bench Mark: OM 42 Elev. 669.727
Approx. 46' NE of Woodland Ave.
and 48' S of E. of Carnegie Ave.



EAST NINTH STREET

Note: Profile grade carried
on centerline unless
otherwise noted.



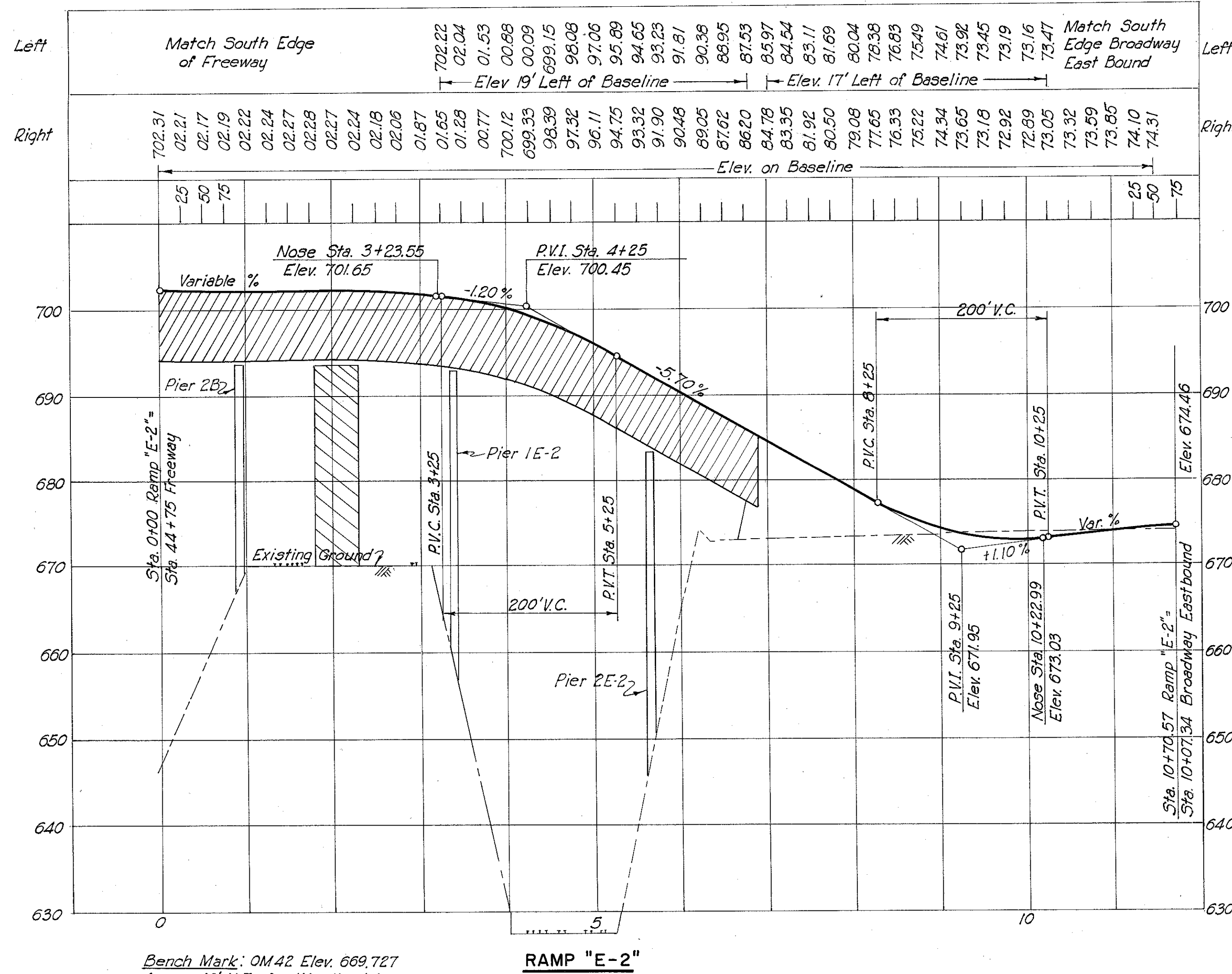
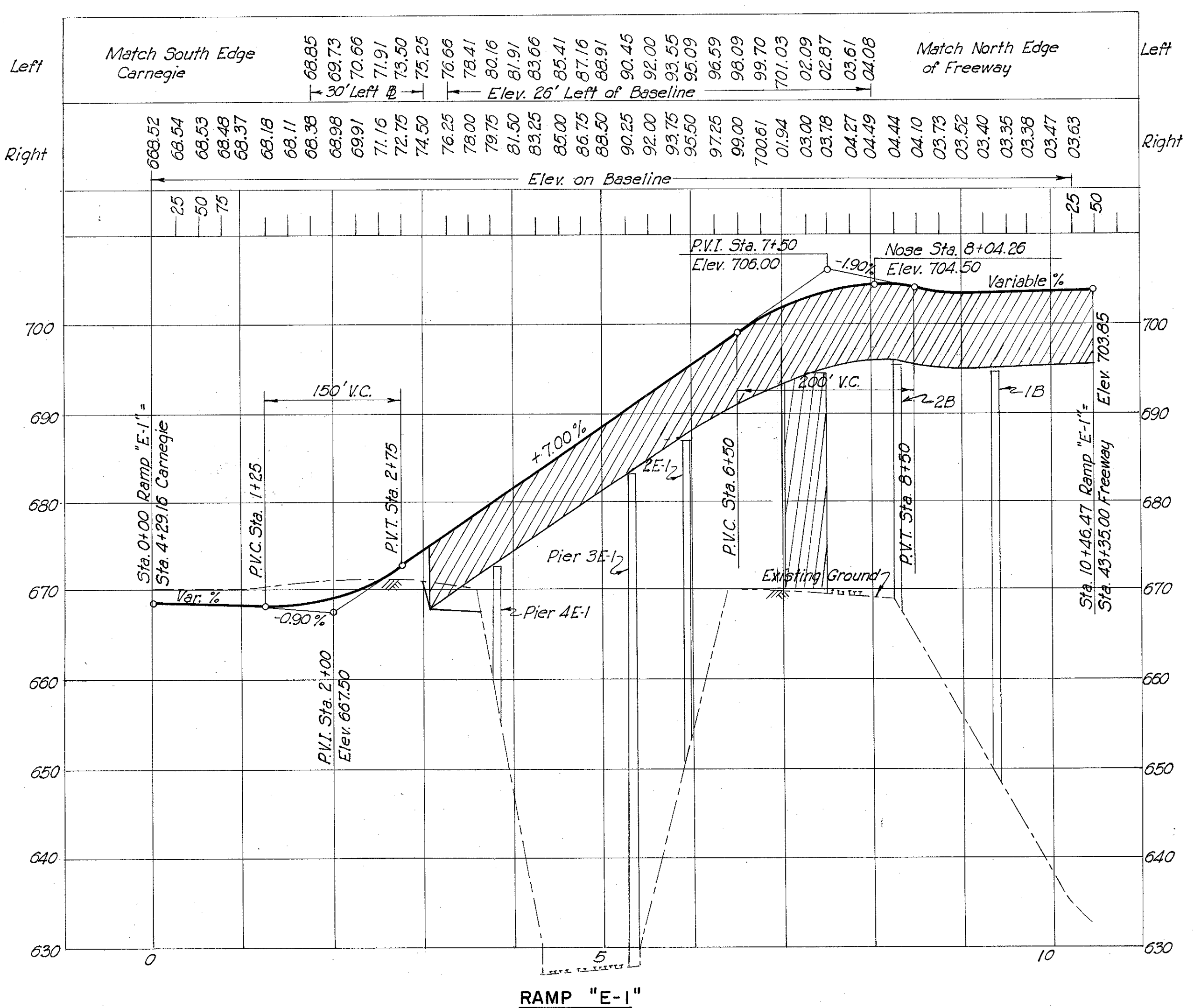
BROADWAY EASTBOUND

Note: Profile grade carried
on Baseline

MICROFILMED
FEB 23 1983

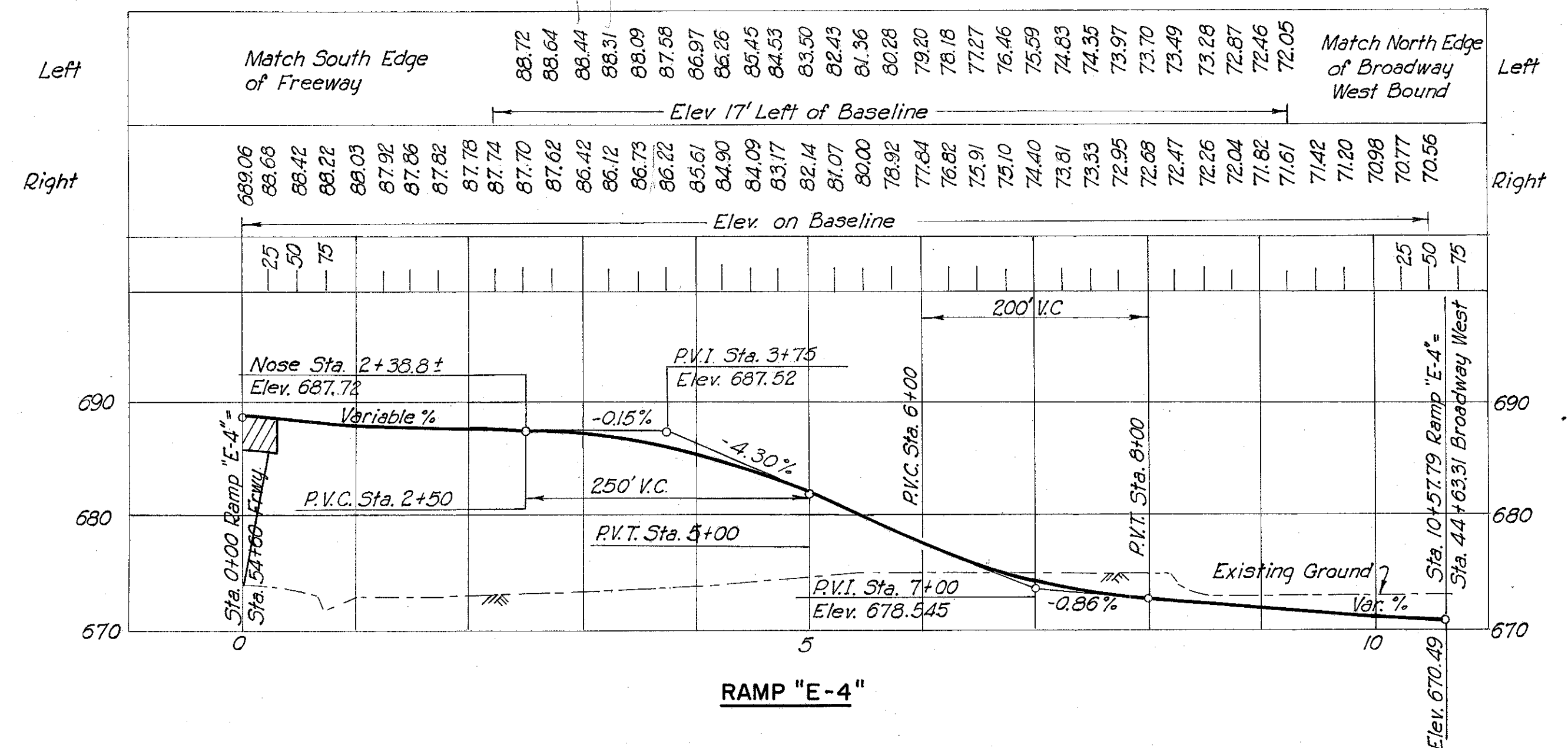
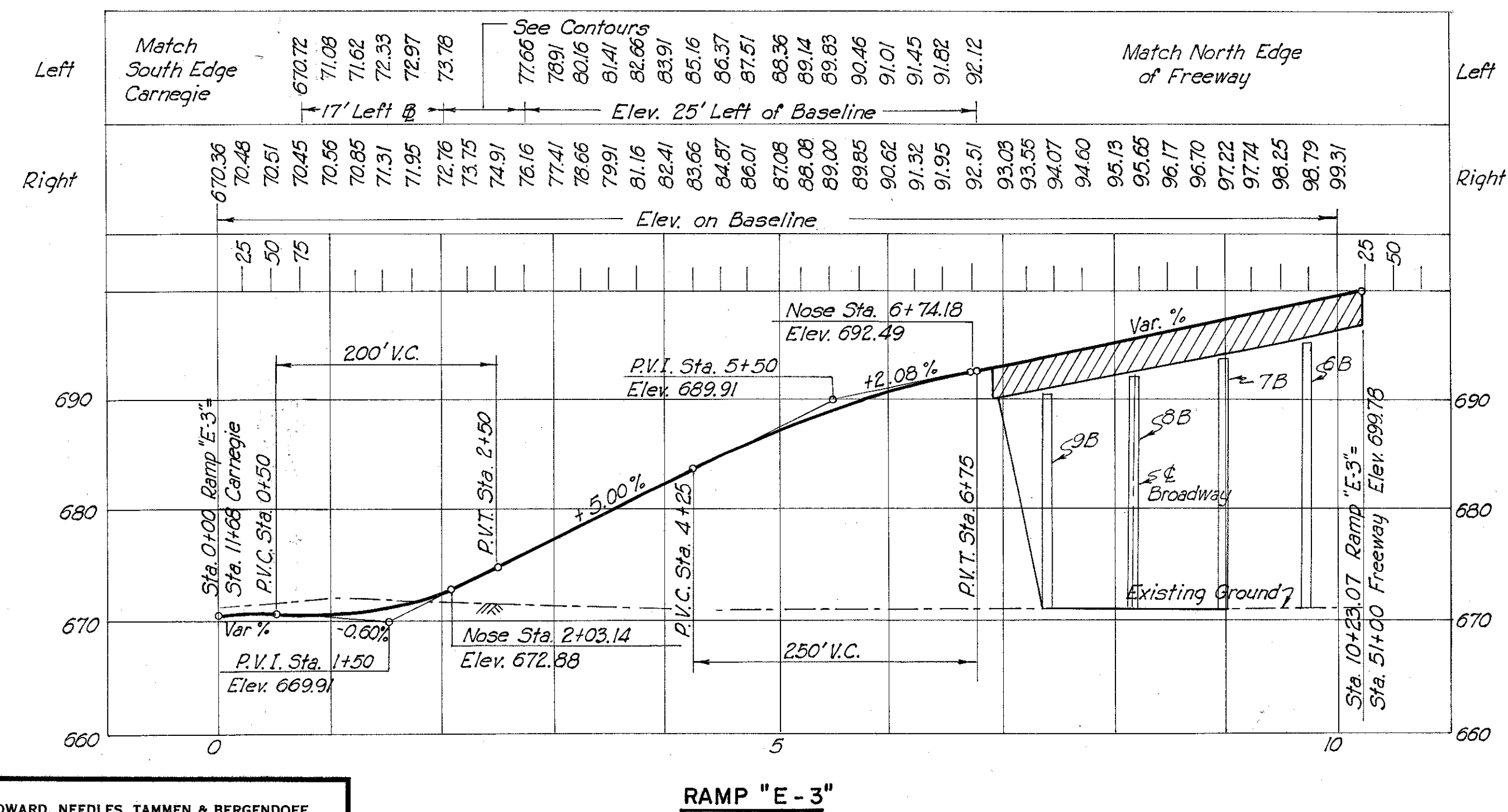
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
RAMP PROFILES



Bench Mark: 0M42 Elev. 669.727
Approx. 46' N.E. of e Woodland Ave.
and 48' S. of e of Carnegie Ave.

Note:
Profile Grade is on Baseline.



SCALE 1"=40' Vert. 1"=100' Hor.
MADE C.E.G. DATE 11-20-56
TRCD. B.M.Q. DATE 11-30-56
CKD. H.K.M. DATE 4-24-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RAMP "E-3"

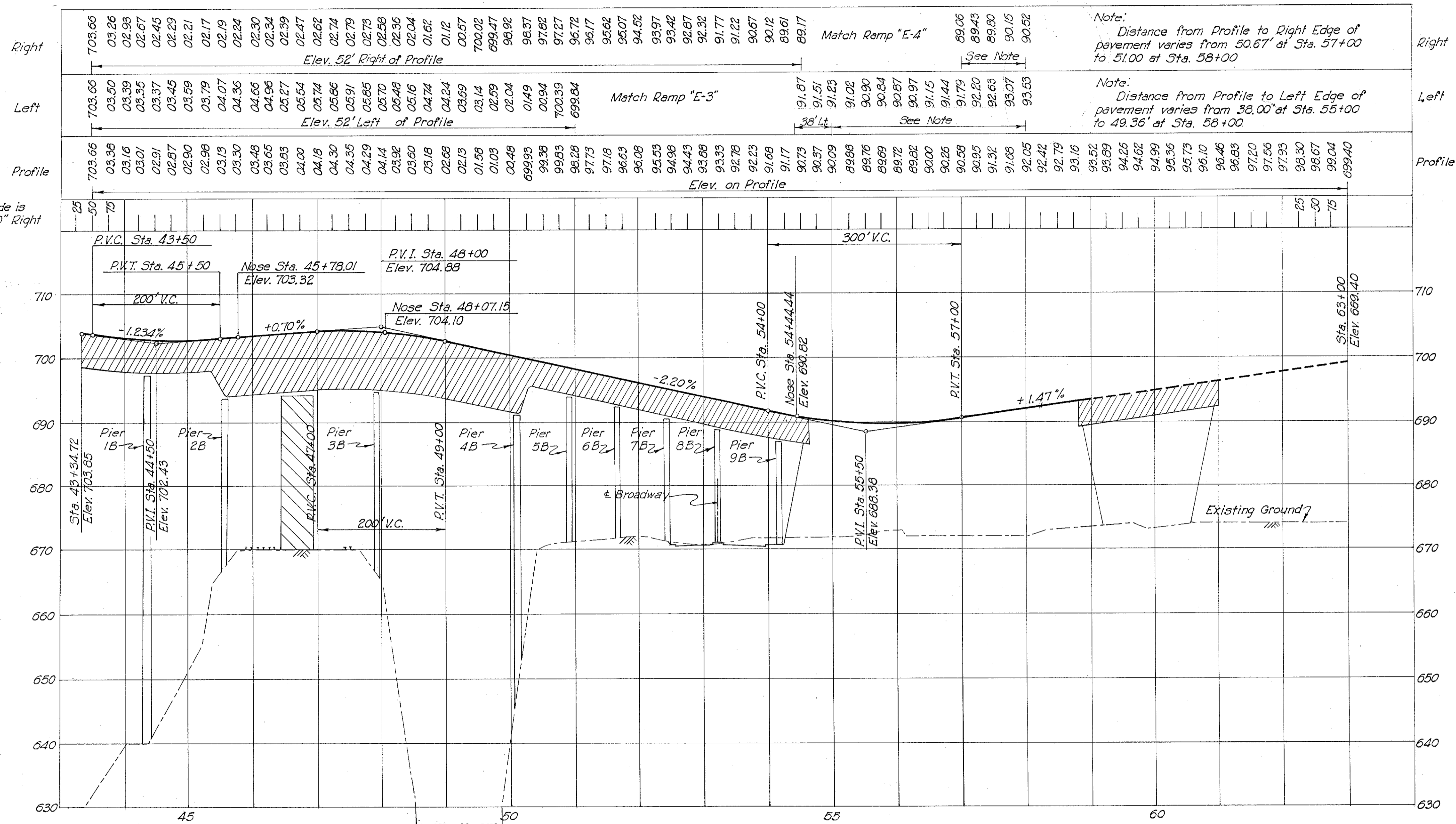
RAMP "E-4"

REVISIONS
FEB 23 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
PROFILE—FREEWAY

Note: Profile Grade is 2'-0" Left and 2'-0" Right of Center Line



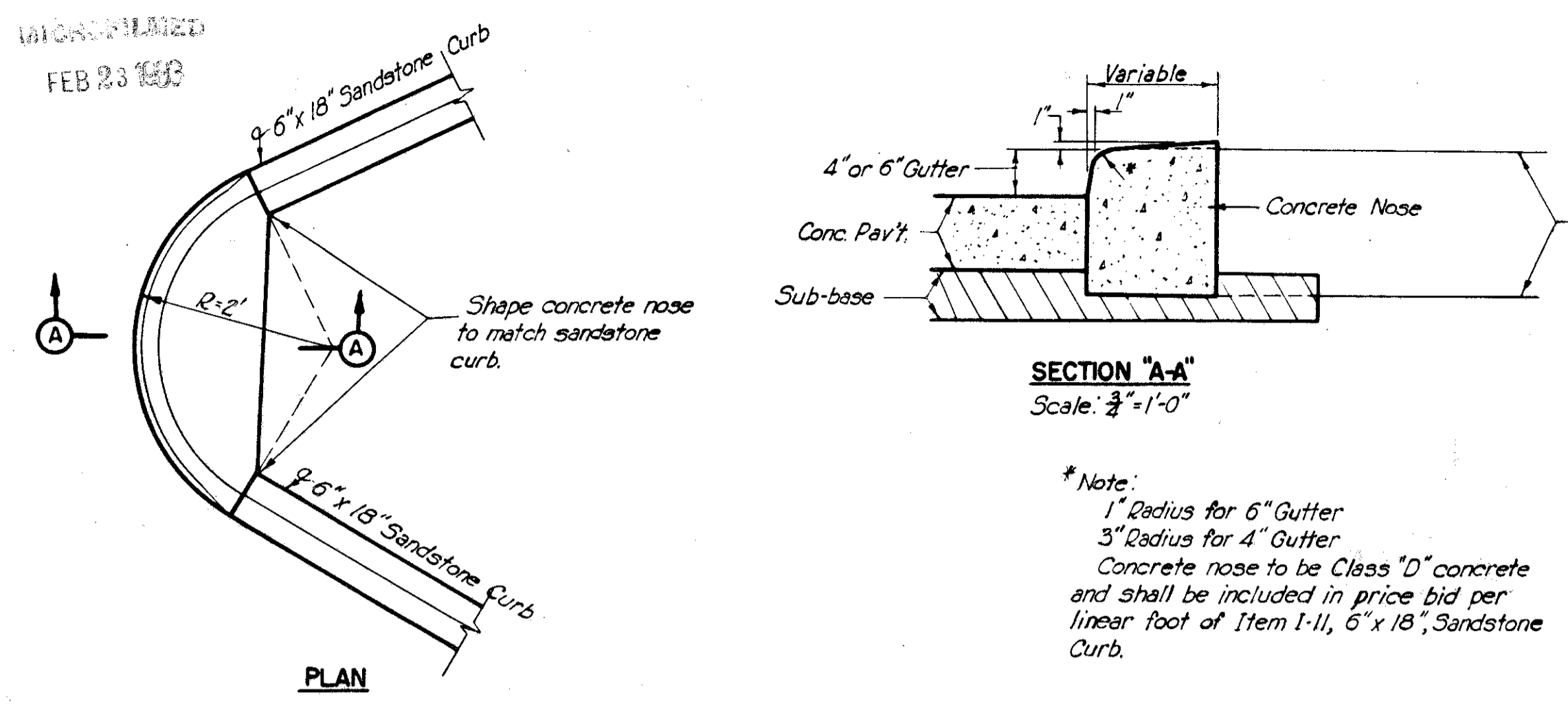
FREEWAY

Bench Mark: OM 42 Elev. 669.727
Approx. 46' N.E. of ϕ Woodland Ave.
and 48' S. of ϕ of Carnegie Ave.

MICROFILMED
FEB 23 1963

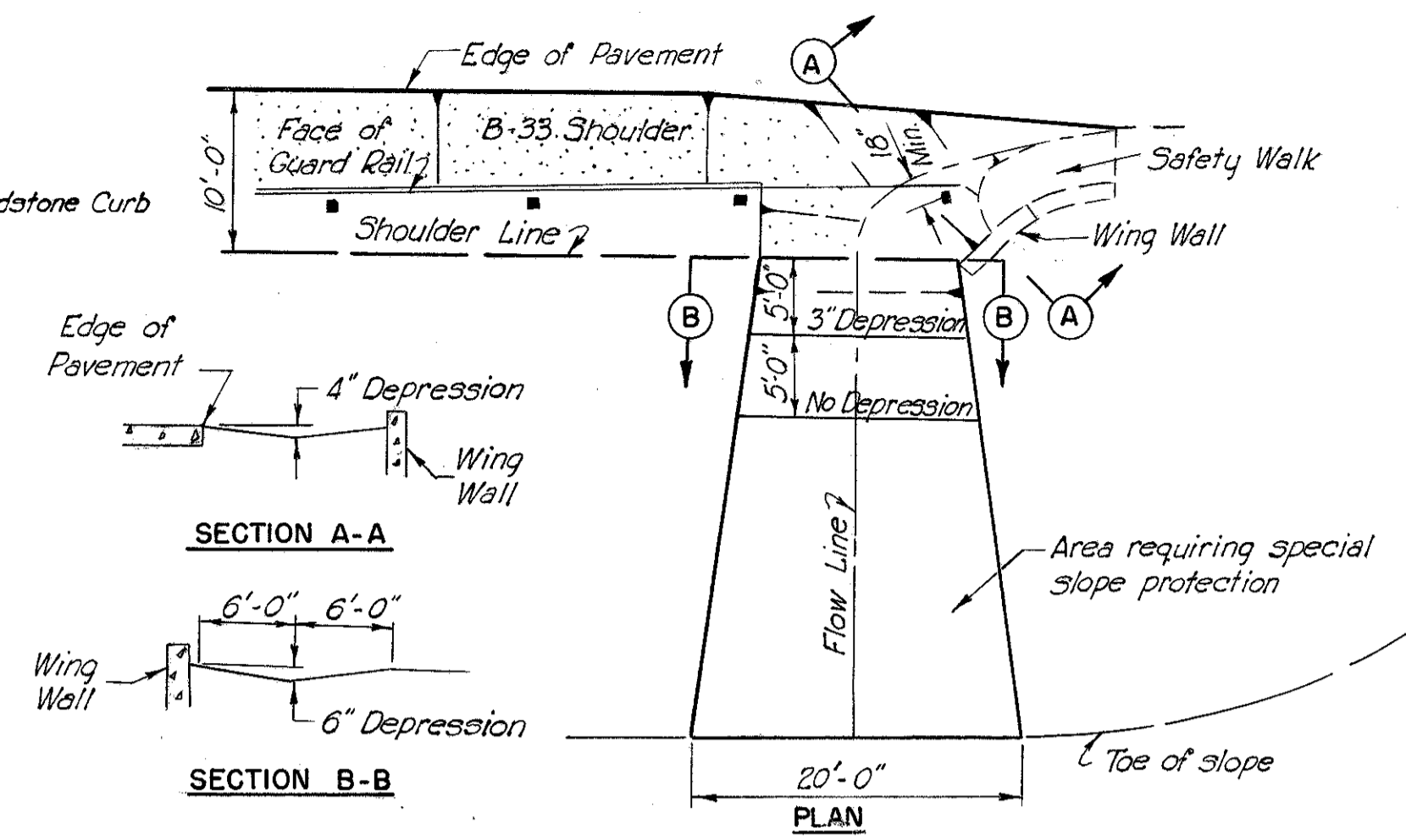
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

MISCELLANEOUS DETAILS



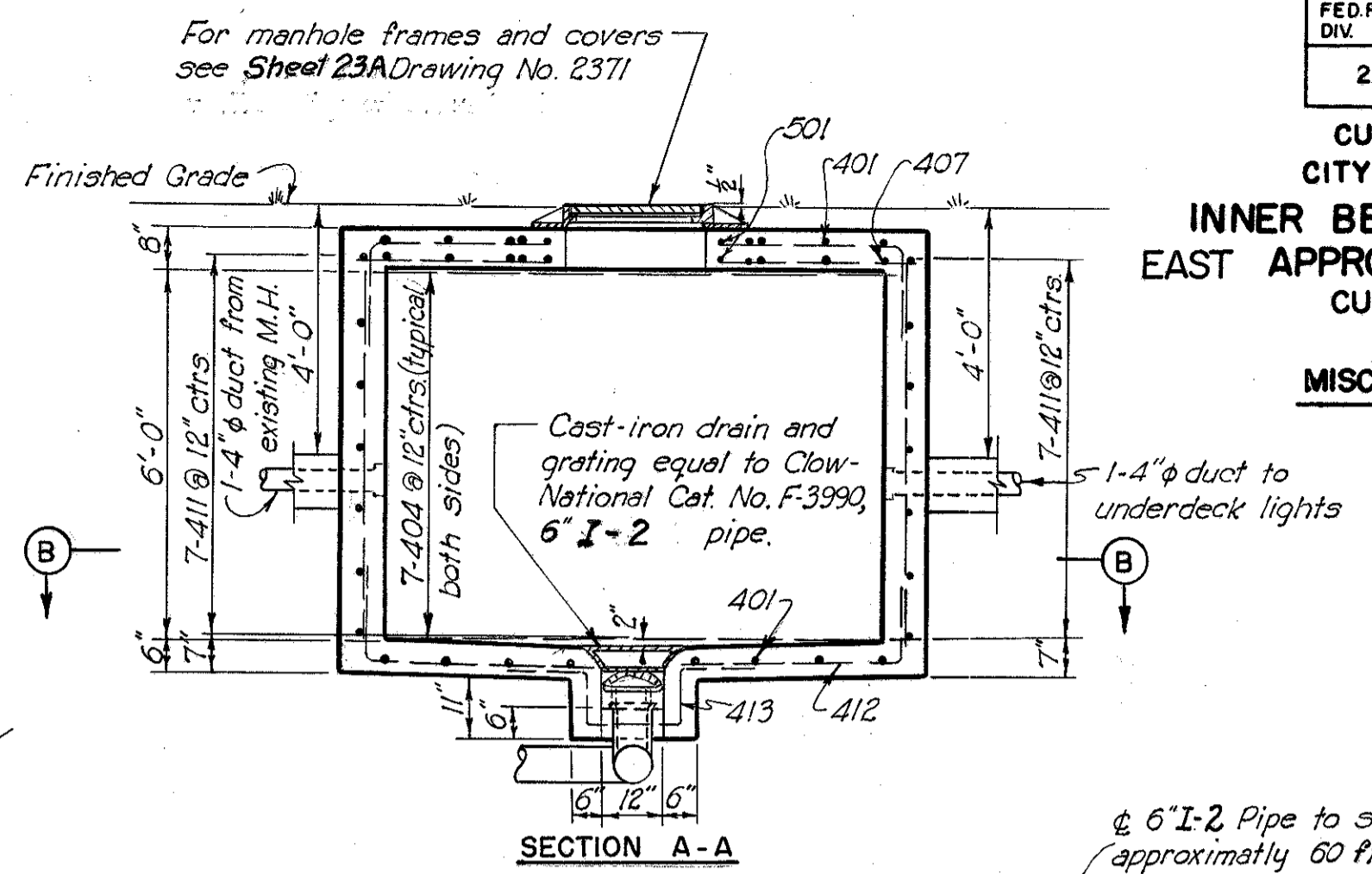
SECTION "A-A"
Scale: 3/4" = 1'-0"

* Note:
1" Radius for 6" Gutter
3" Radius for 4" Gutter
Concrete nose to be Class "D" concrete and shall be included in price bid per linear foot of Item I-11, 6" x 18" Sandstone Curb.



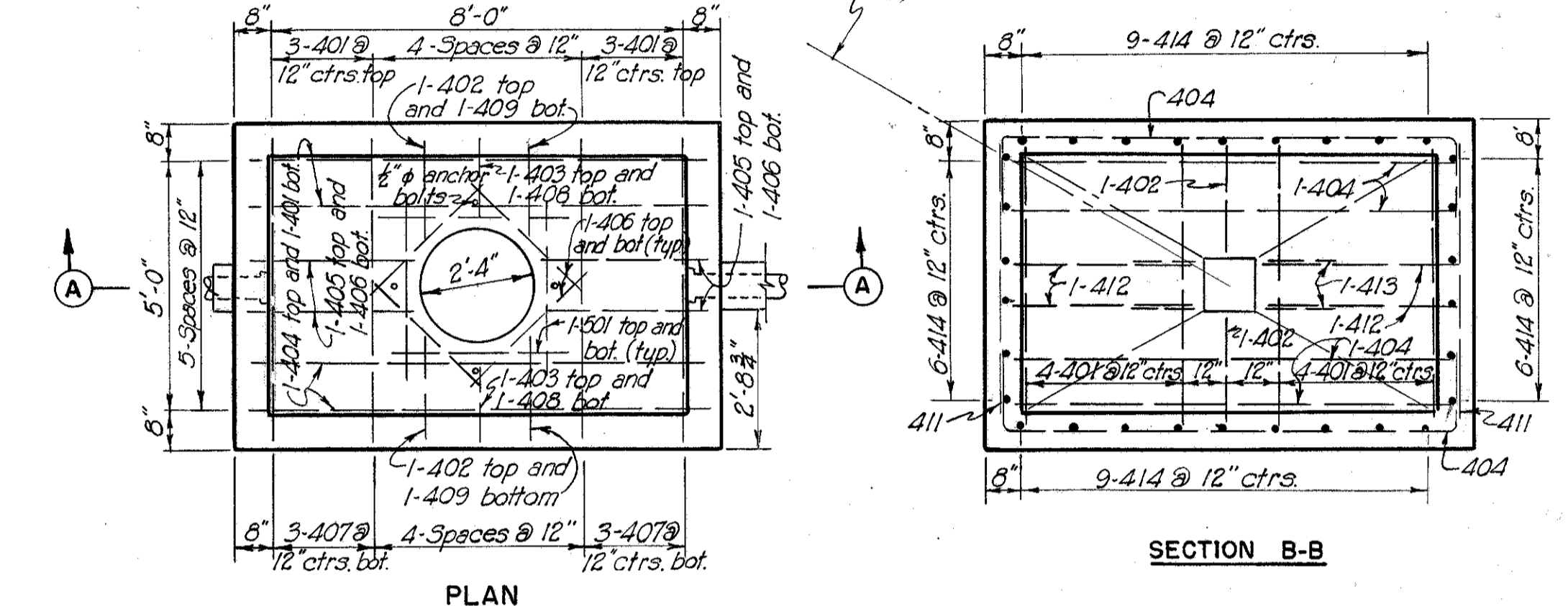
SECTION "A-A"
SECTION "B-B"
PLAN
DETAIL "G"
SPECIAL BERM AND SLOPE PROTECTION
Not to Scale.

Note:
Prior to placement of sod, galvanized Straight Line Poultry Fence or equivalent having 2" mesh and all wires No. 20 Gauge shall be placed on the finished grade. The 4" wide strands shall be placed at right angles to the direction of flow. The edges of each strand shall be staked with 1" x 1" x 24" wood stakes; placed at a maximum spacing of 4' and driven flush with finished grade.
Each strand of fencing shall be fastened together at twelve inch intervals by means of hog rings and the fence shall be secured to the wood stakes by metal staples.
Sod shall be laid in accordance with Construction and Material specifications, Section L-10.07.
The price bid per sq. yd. for Sodding (Including 2" galvanized wire mesh) shall constitute full compensation for furnishing all labor, equipment, tools, and incidentals necessary to complete this item in place, completed and accepted.
For location of Special Berm and Slope Protection see Paving Plans, Sheet No. 9.



SECTION "A-A"

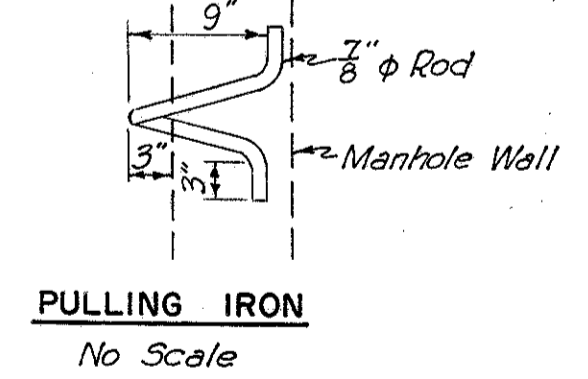
6" I-2 Pipe to sewer under Carnegie Ave. approximately 60 ft. Flow Line at sewer, 658.0



SECTION "B-B"

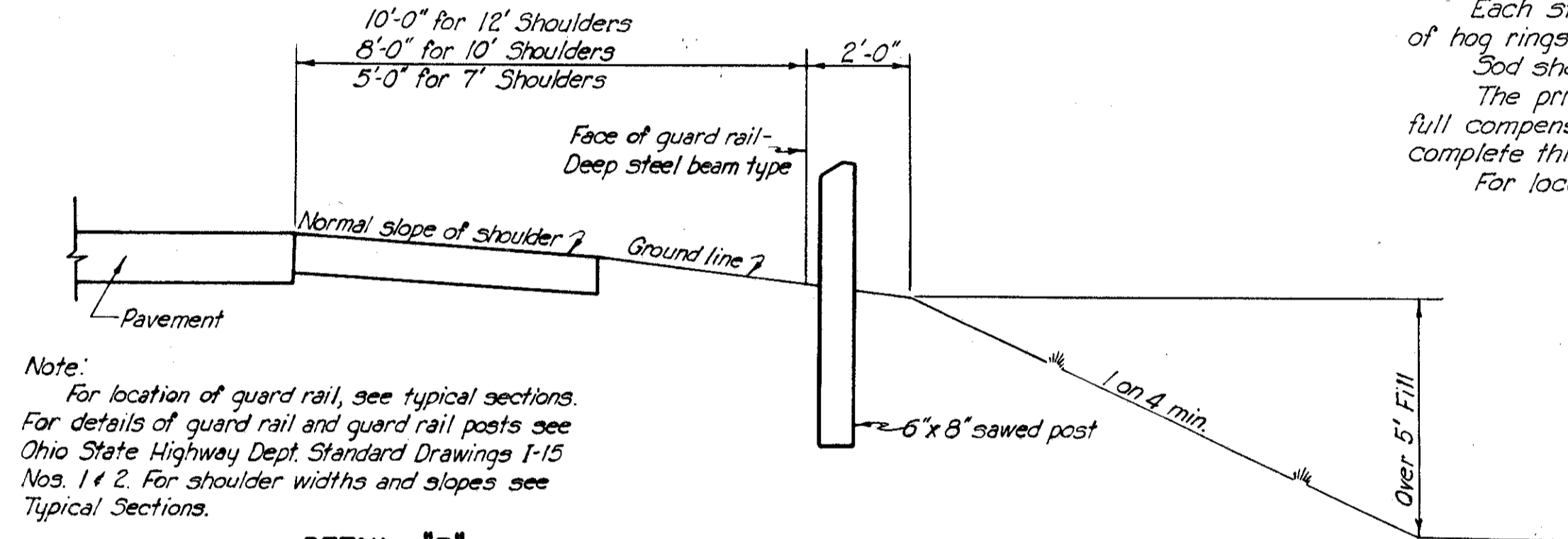
TRANSFORMER MANHOLE
Scale: 3/8" = 1'-0"

Notes:
The top and sides of the manhole shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6".
A 1" phi x 10'-0" ground rod shall be placed in one corner of the manhole, with 6" of the rod extending above the floor, for a minimum of 5 ohms to ground.
Install one pulling iron opposite each duct entrance.
Location of manhole; Sta. 48+90, 84'R. & Broadway W.B.

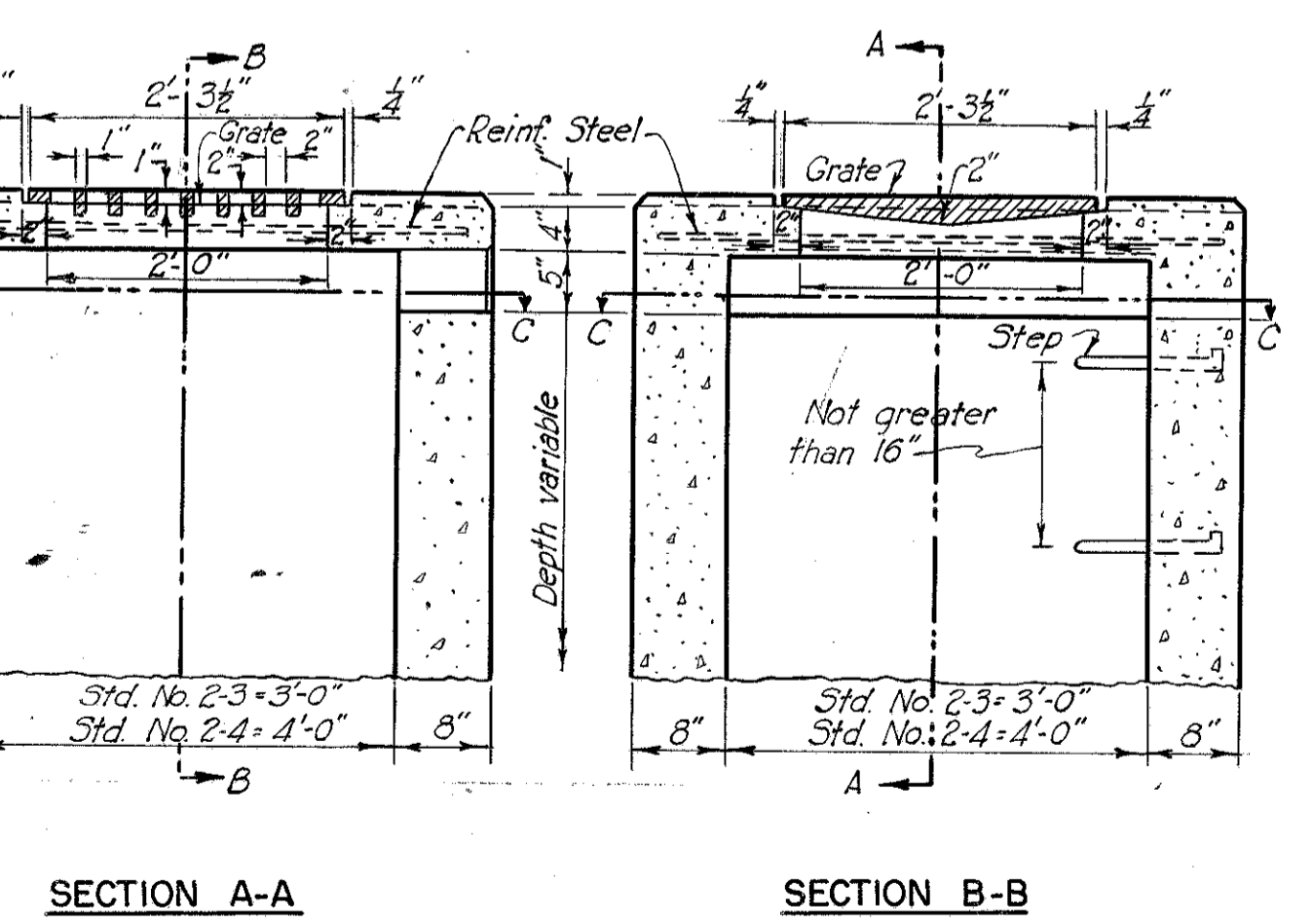


PULLING IRON
No Scale

REINFORCING BAR SCHEDULE					
MARK	NO.	LENGTH	TYPE	DIMENSIONS	
				A	B
	401	14	8'-8"	105	5'-8" 1'-6"
	402	6	3'-8"	104	2'-2" 1'-6"
	403	2	3'-2"	104	1'-8" 1'-6"
	404	22	11'-8"	105	8'-8" 1'-6"
	405	4	4'-9"	104	3'-3" 1'-6"
	406	12	3'-3"	3Tr.	
	407	6	6'-0"	3Tr.	
	408	2	1'-9"	3Tr.	
	409	4	2'-3"	3Tr.	
	410	4	9'-0"	3Tr.	
	411	14	5'-6"	3Tr.	
	412	4	4'-11"	104	3'-5" 1'-6"
	413	2	5'-10"	121	11" 1'-6"
	414	30	6'-3"	3Tr.	
	501	8	3'-6"	3Tr.	



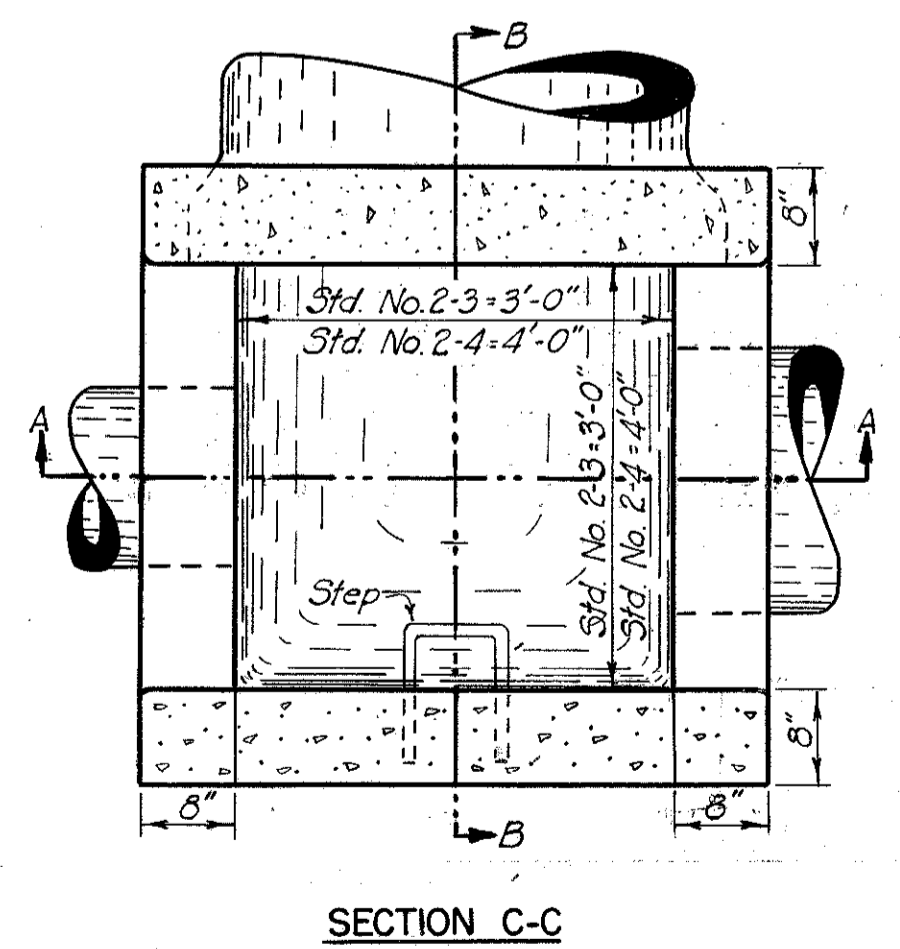
DETAIL "F"
GUARD RAIL DETAILS
Not to Scale



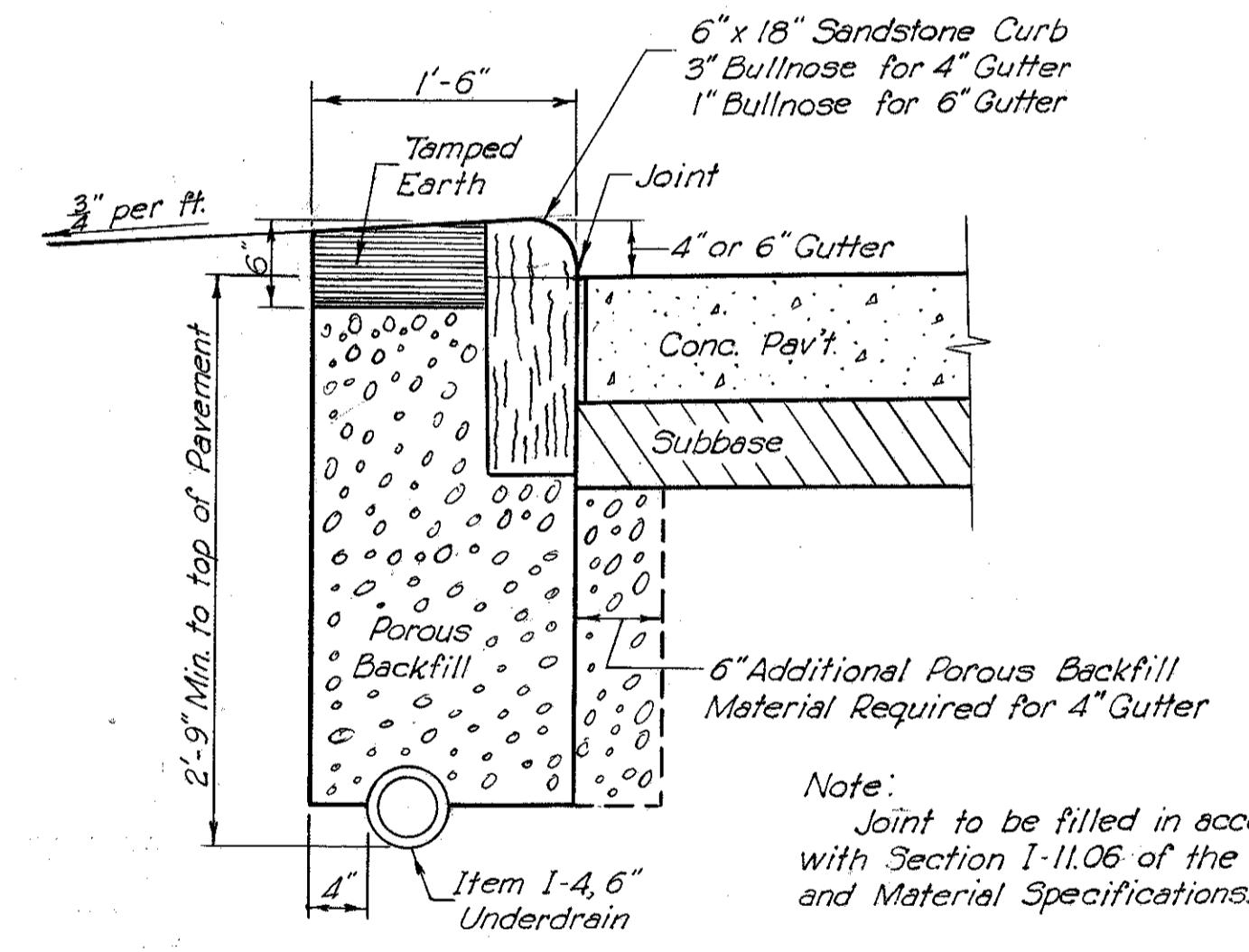
SECTION "A-A"

SECTION "B-B"

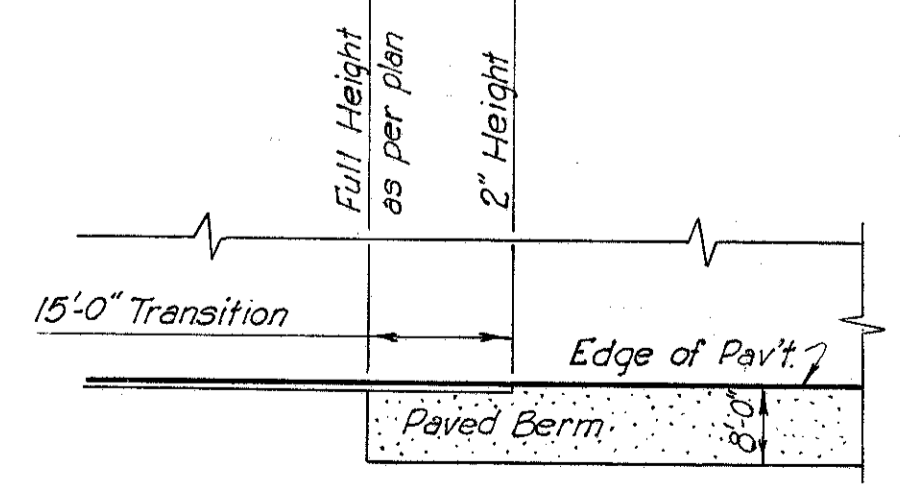
STANDARD NO. 2-3 & 2-4 CATCH BASIN MODIFICATION
Scale: 3/4" = 1'-0"



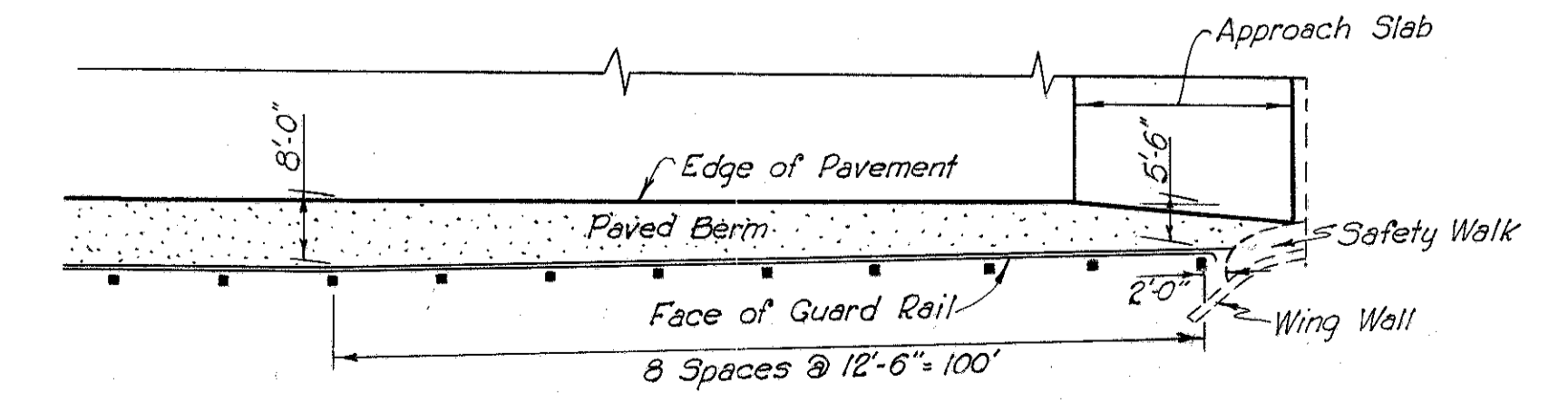
SECTION "C-C"



DETAIL "I"
CURB-UNDERDRAIN DETAILS
Scale: 1" = 1'-0"



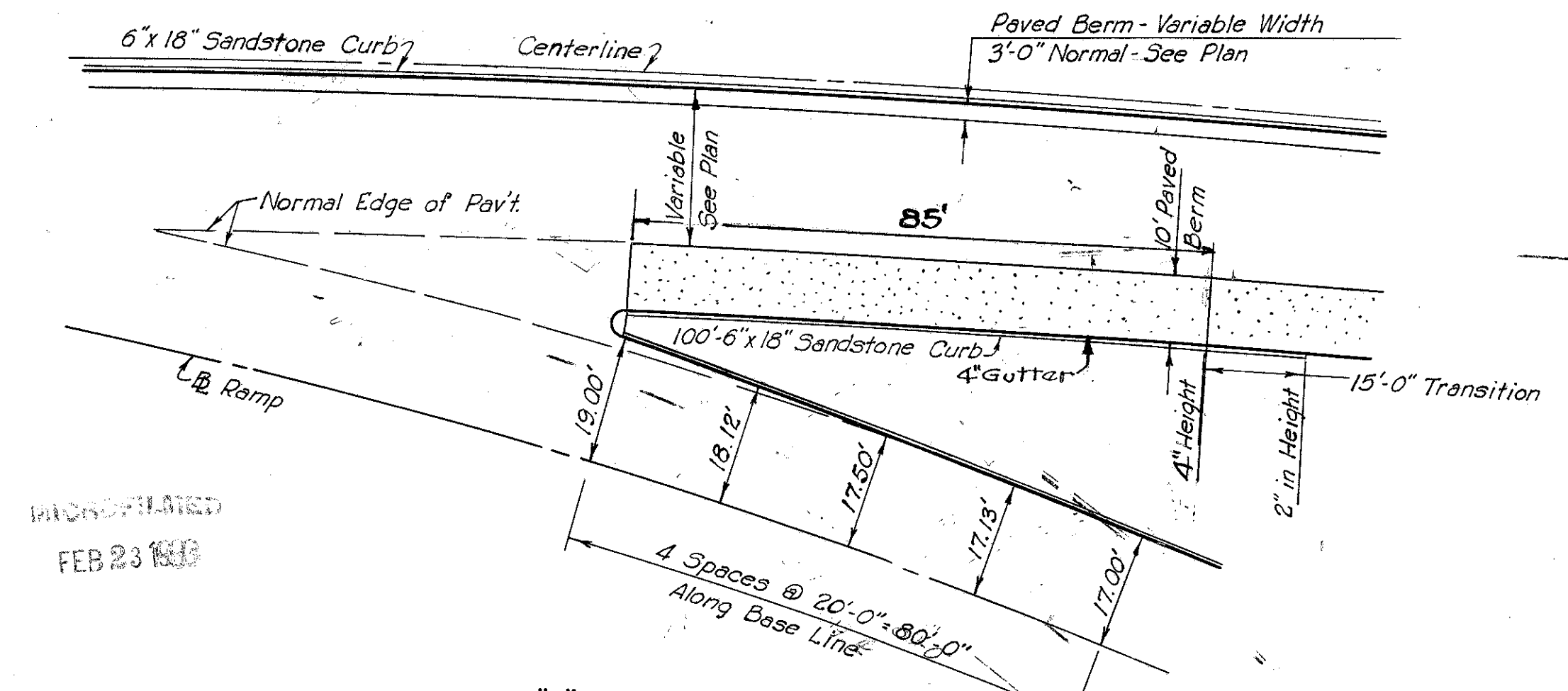
DETAIL "H"
CURB AND SHOULDER TRANSITION
PLAN
Not to Scale



DETAIL "J"
TYPICAL SHOULDER TRANSITION
AT WING WALL
PLAN
Not to Scale

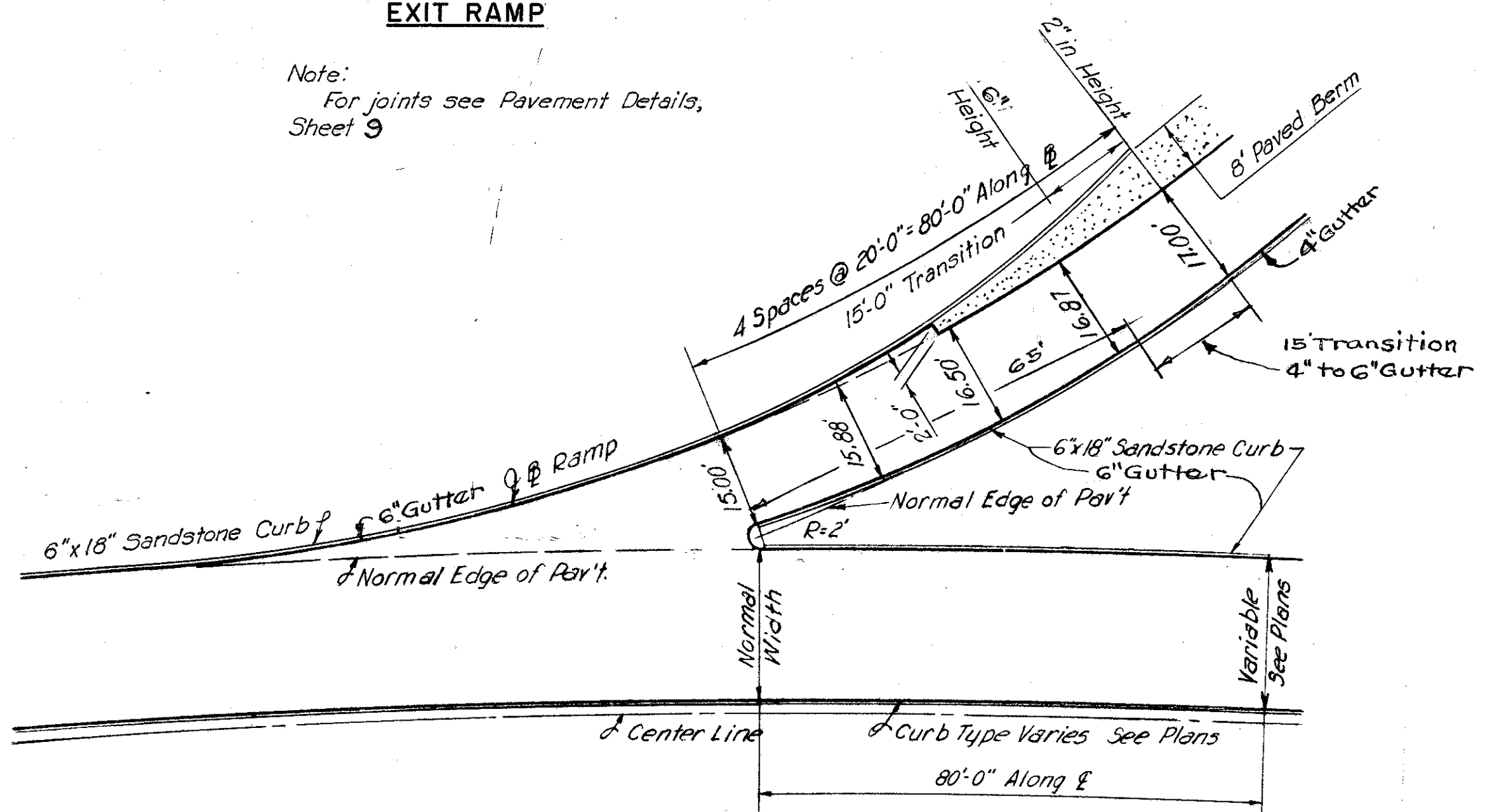
GUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

MISCELLANEOUS DETAILS

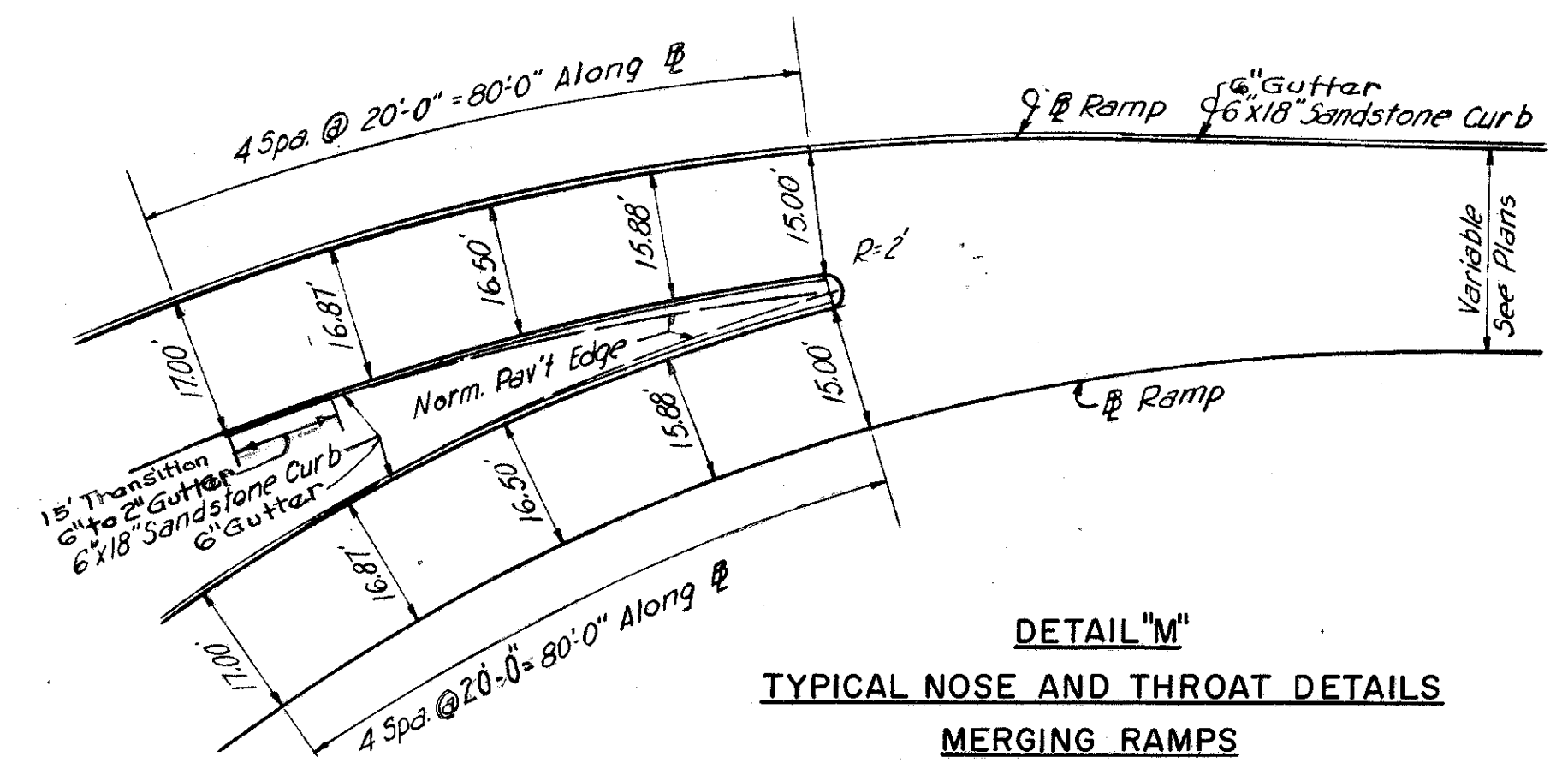


DETAIL "K"
TYPICAL NOSE AND THROAT DETAILS
EXIT RAMP

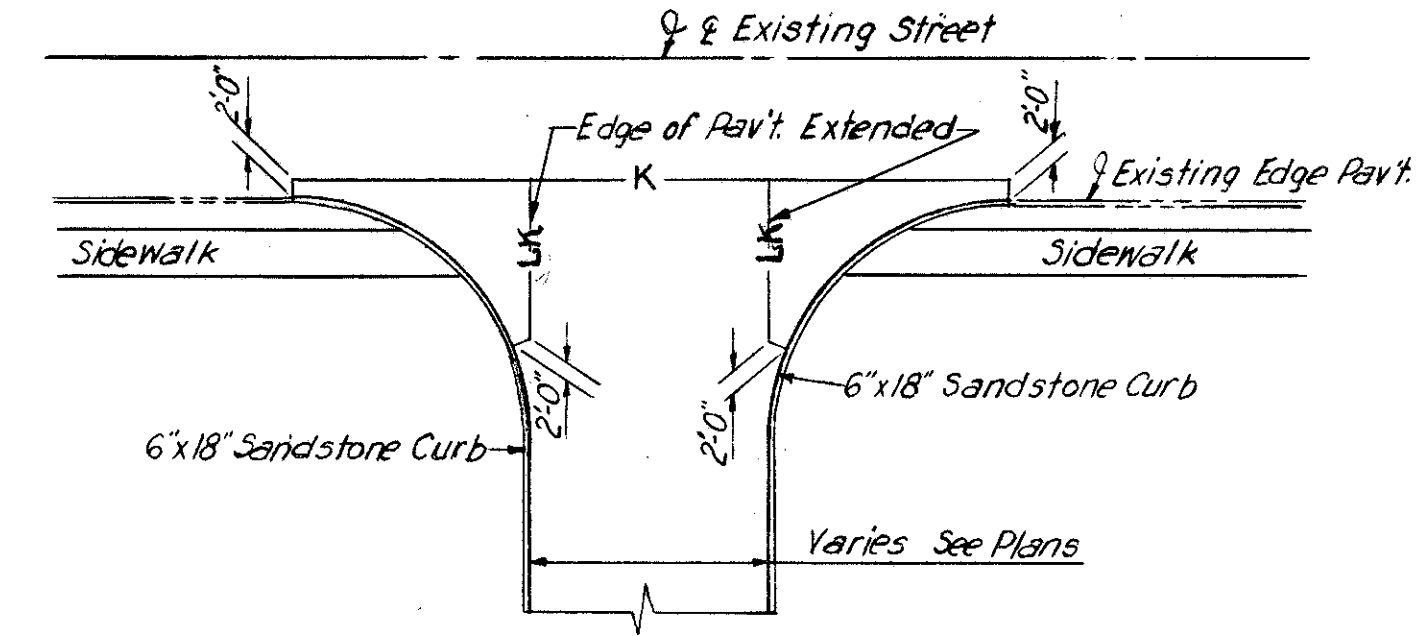
Note:
For joints see Pavement Details,
Sheet 9



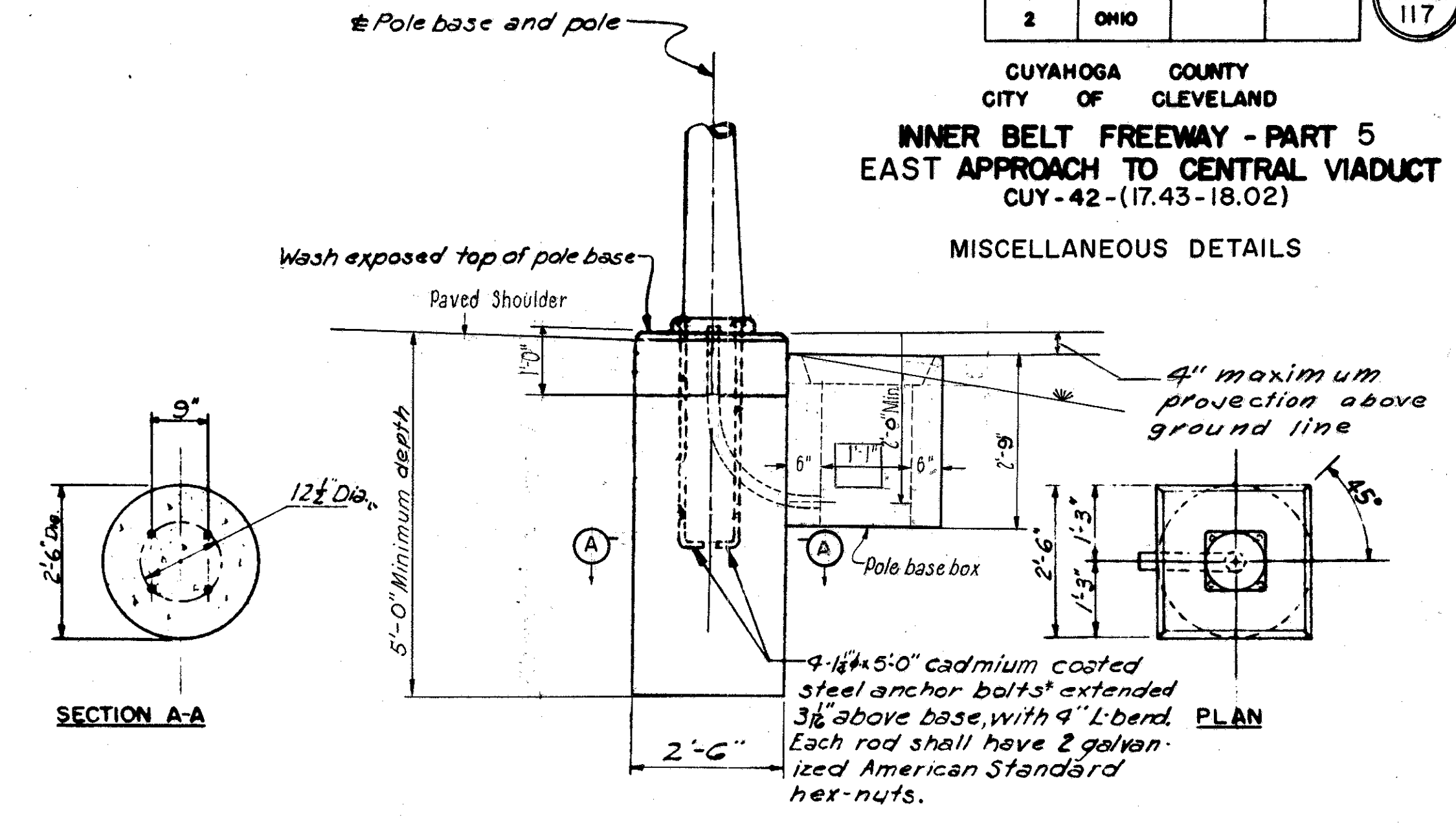
DETAIL "L"
TYPICAL NOSE AND THROAT DETAILS
ENTRANCE RAMP



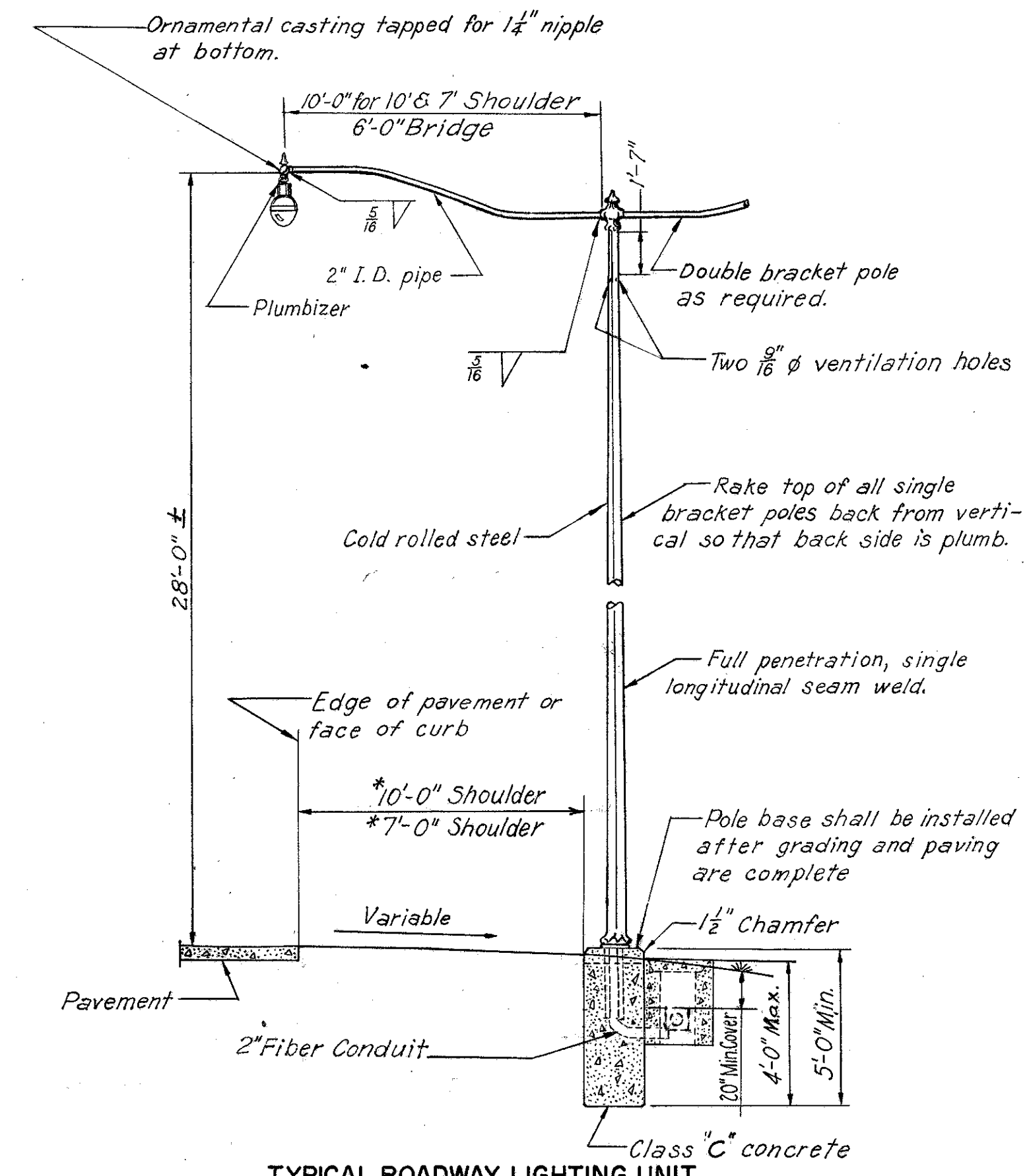
DETAIL "M"
TYPICAL NOSE AND THROAT DETAILS
MERGING RAMPS



L - Standard Longitudinal Joint
K - Butt Joint Without Dowels
L.K - Standard Longitudinal Key Joint Without tie bars.
DETAIL "N"
TYPICAL INTERSECTION DETAILS

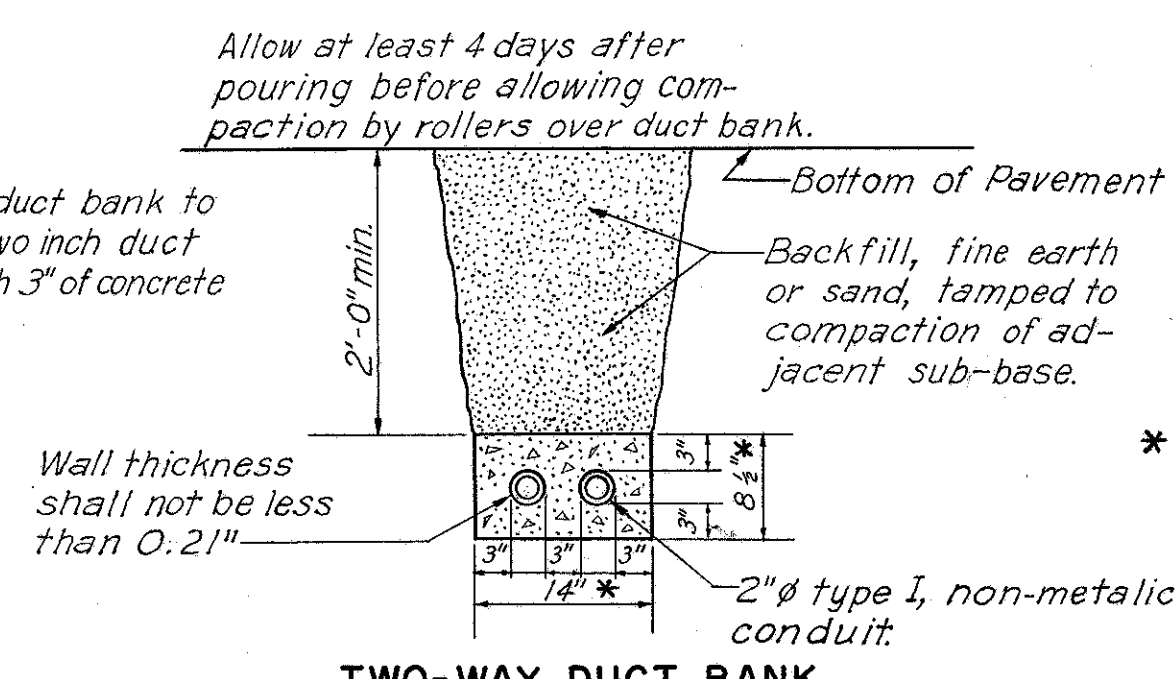


TYPICAL POLE BASE
Scale: 1/2" = 1'-0"



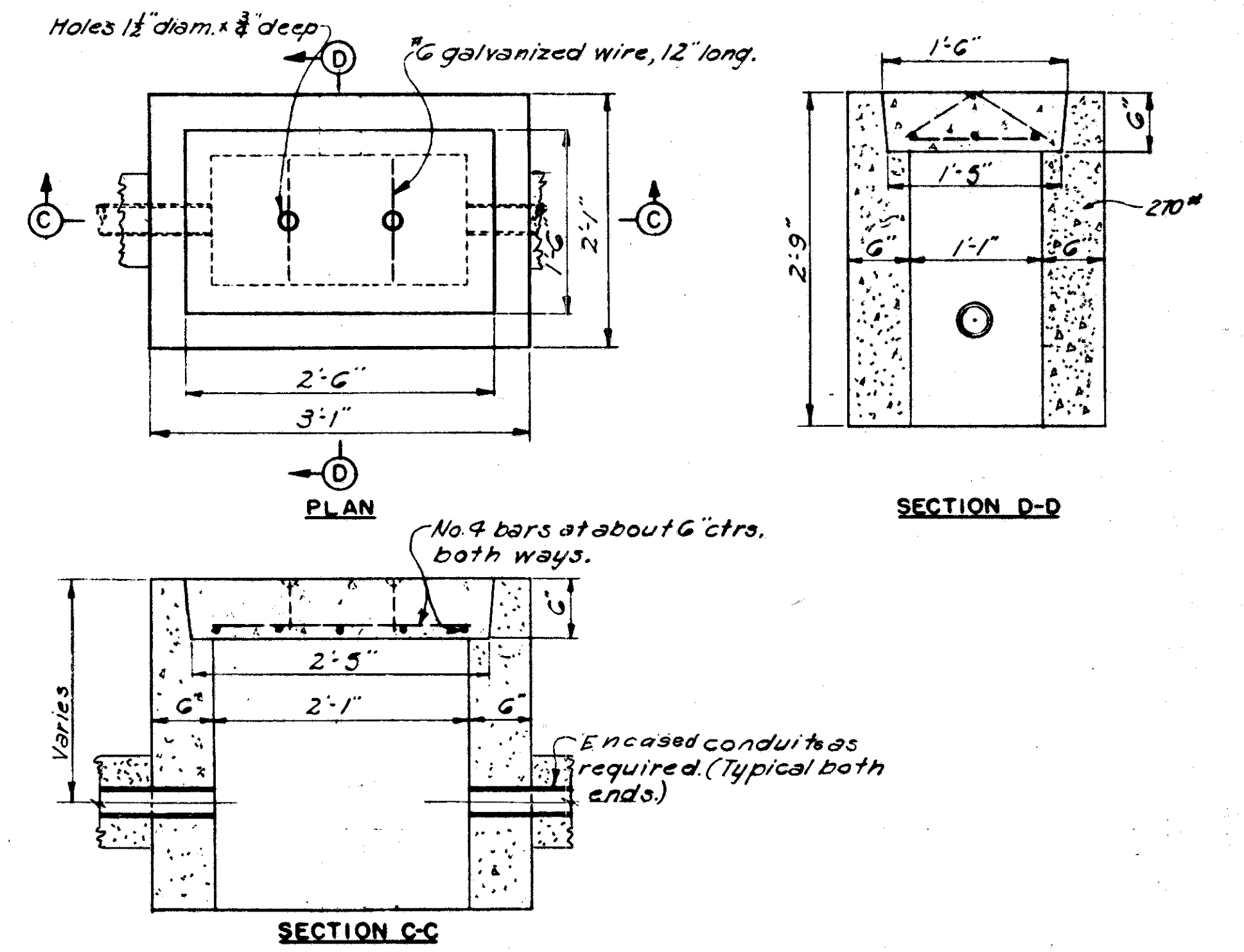
TYPICAL ROADWAY LIGHTING UNIT
No Scale

Note: Three-way duct bank to have one extra two inch duct on either side with 3" of concrete surrounding it.



TWO-WAY DUCT BANK
Scale: 3/4" = 1'-0"

* Shown for 2-2" phi duct bank. Arrange 4-way duct banks in a square. Thickness of concrete between conduits and of outside concrete encasement shall not be less than 3".



CONCRETE PULL BOX
Scale: 1" = 1'-0"

REPRODUCED
FEB 23 1963

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	15 117
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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
LIGHTING DETAILS

Existing bridge with lighting units, conduits and conductors.

Note:
- Lamp loads on regulators are based on the recommendations of Westinghouse for their 30 KW regulators. If regulators of other Manufacture are installed by Power Company, the Contractor shall make circuit arrangement changes as required so as to not exceed the manufacturers recommendations.
- All crossings under paved areas shall be with 2.2" φ ducts, except as shown.
- Spacing based on average maintained lighting intensity of one foot candle for Roadway Lighting; three foot candles for underdeck lights.

Photo electric lighting control with 240 Volts D.P.S.T. Contactor and "OFF-ON" trip switch equal to Fisher, Pierce Model G3304.C by Contractor, to be installed on top of Pier and oriented to North Sky.

240 Vac., 50A. D.P. safety switch, weather proof, enclosed, equal to Trumbull Cat No. 44322 SNR2 with 2.60A. fuses, by Contractor

240 V. Nema size 2 Contactors and coil, equal to Cutler-Hammer, Cat. No. 9592-H38, two-pole, electrically held, in weather-proof enclosure; by Contractor.

2-Pole circuit breaker, 15amp, conduit mounted, weather resistant, equal to Crouse-Hinds Type FL642-WT15-2. Install breaker in 3/4" φ conduit run to lights, reducer bushings to be furnished if needed.

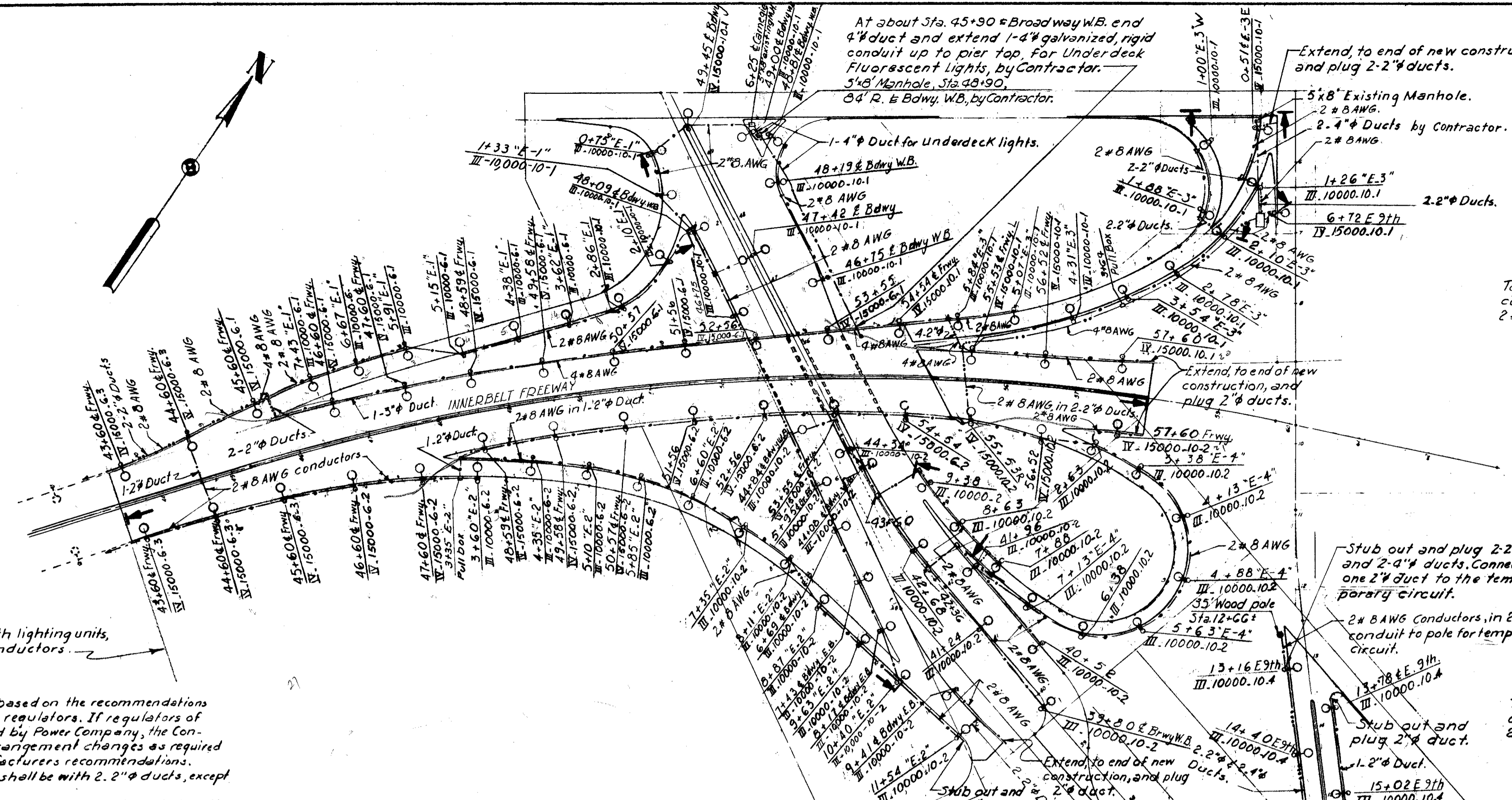
2# 12 AWG in 3/4" φ rigid galv. conduit.

32"x12"x10" Locked, steel, galvanized, junction enclosure equal to Columbia type A, mounted to bridge girder in position to facilitate pulling wires from manhole and for conduit to safety switch, by Contractor.

2# 10 AWG, in 2" φ rigid galv. conduit under North side girder, to last E.B. lights.
8"x8"x4" Junction box, steel galv., equal to Columbia type A.
Typical 6"x6"x3" Junction box.
Typical 3/4" φ flexible conduit equal to Sealrite Type EF.

Note: Contractor shall solidly ground steel structure with No. 6 ground wire to insure that fluorescent fixtures are at ground potential.

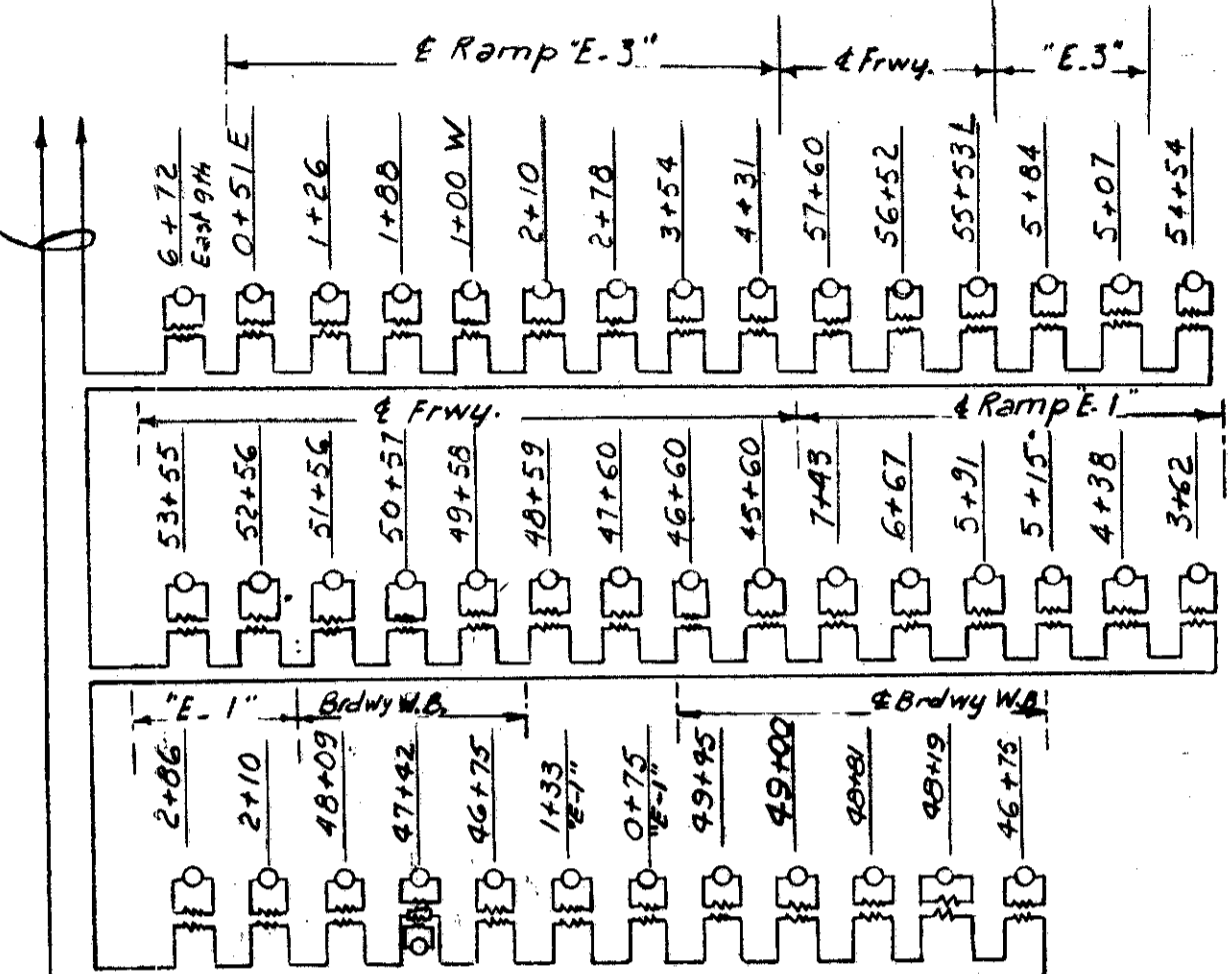
ROADWAY LIGHTING LAYOUT
Scale: 1" = 100.0'



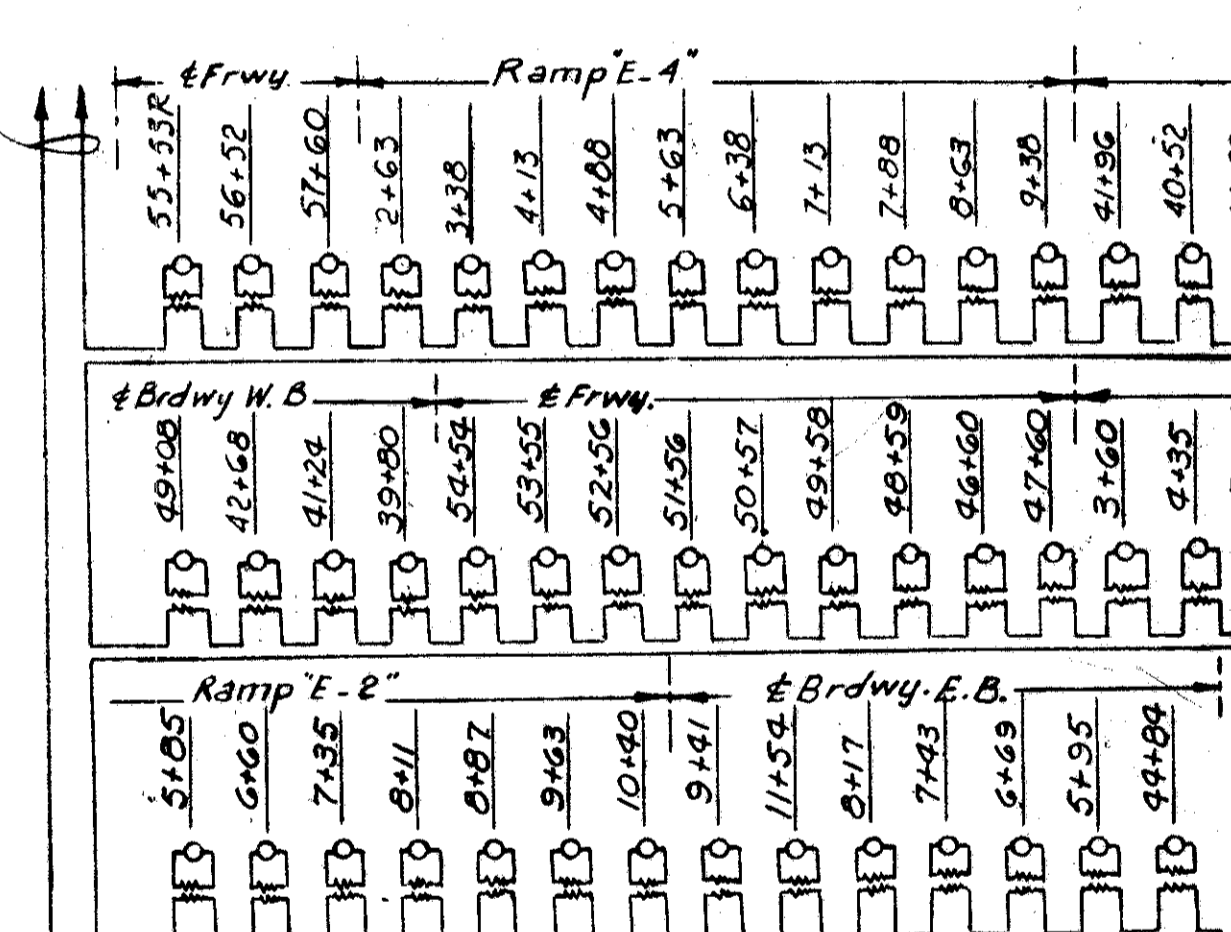
To 30 KW. Constant current regulator. 2# 8 AWG conductors.

To 30 KW. Constant current regulator. 2# 8 AWG conductors.

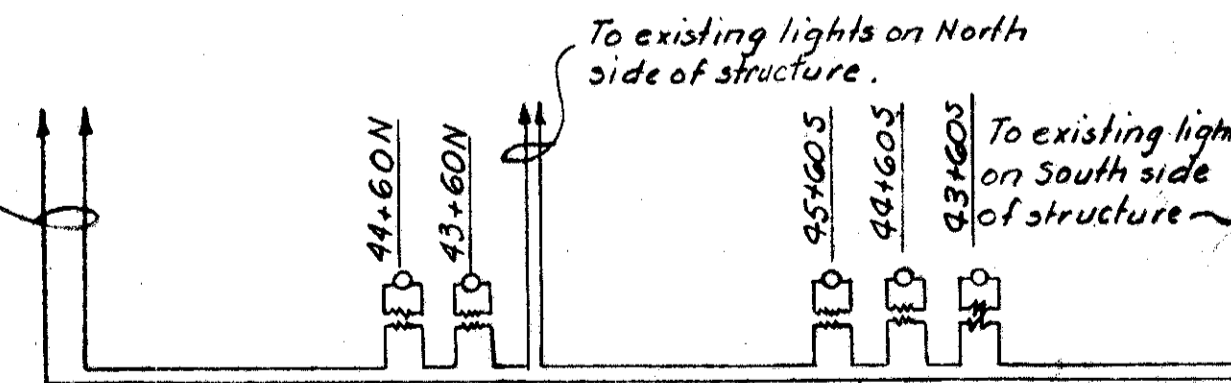
To 30 KW. Constant current regulator. 2# 8 AWG.



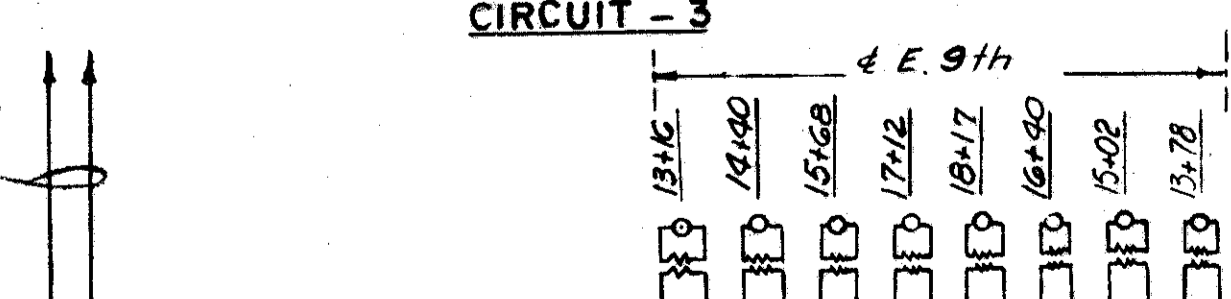
CIRCUIT - 1



CIRCUIT - 2



CIRCUIT - 3



CIRCUIT - 4

ROADWAY LIGHTING WIRING DIAGRAM
No scale

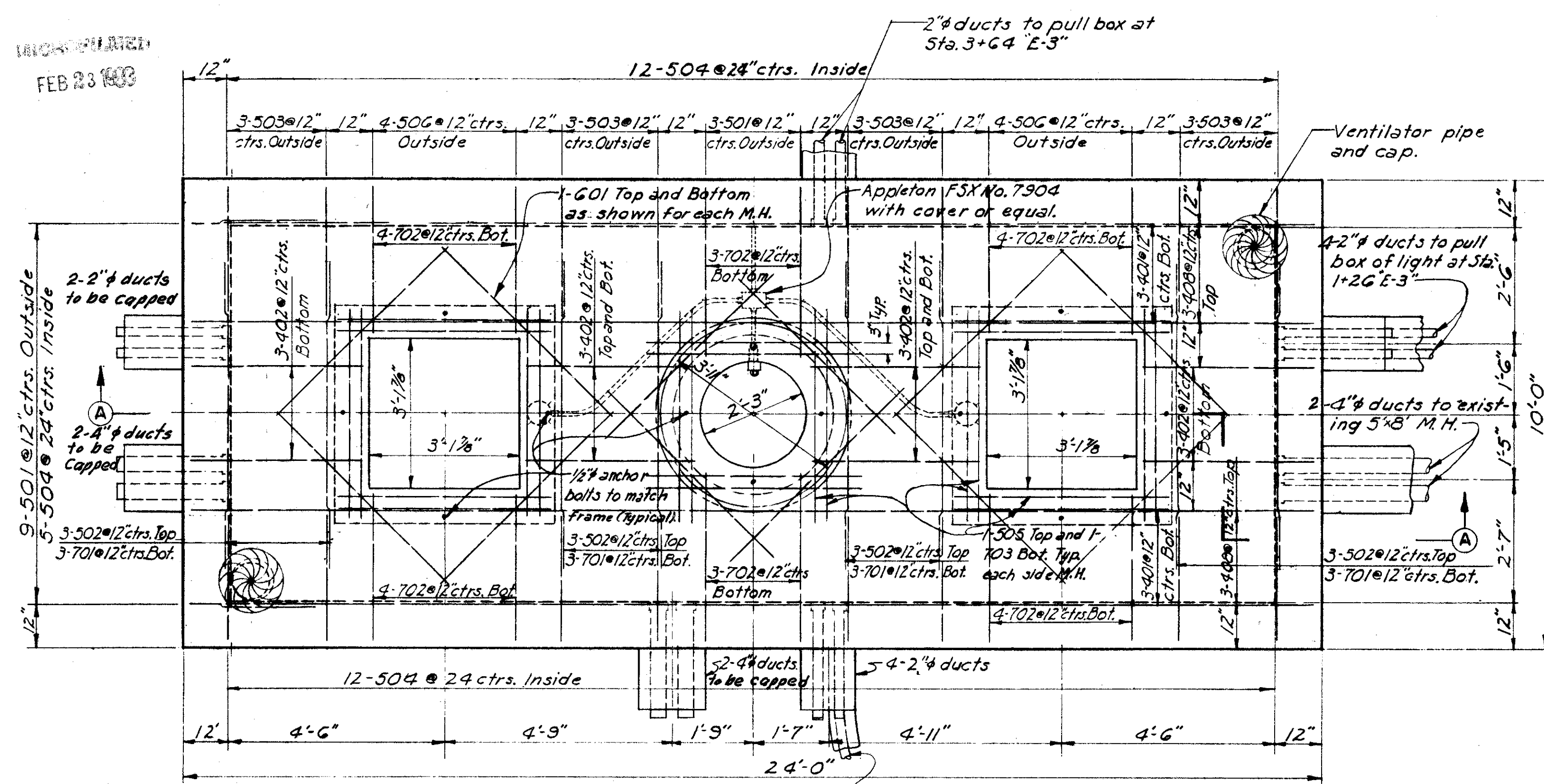
KEY

- Roadway lighting luminaire designation.
- Underdeck lighting luminaire, 2-lamp, equal to Line Material Co., Cat. No. G35000C2, with 230 volt ballasts and L-brackets for mounting from above. Spacing 15 ft.
- Conduits designation. Number of dots represents No. of 2" φ conduits, except as shown. Double number of conduits for return runs where necessary.
- Ⓜ Regulator vault designation. 8'x22' underground vault.
- Ⓜ Futureregulator vault designation. 8'x11' Underground vault.
- Ⓜ Underdeck Lighting designation. 'F' represents fluorescent light.
- 3'1"x2'1"x2'9" Pull box designation.
- Limit of State participation

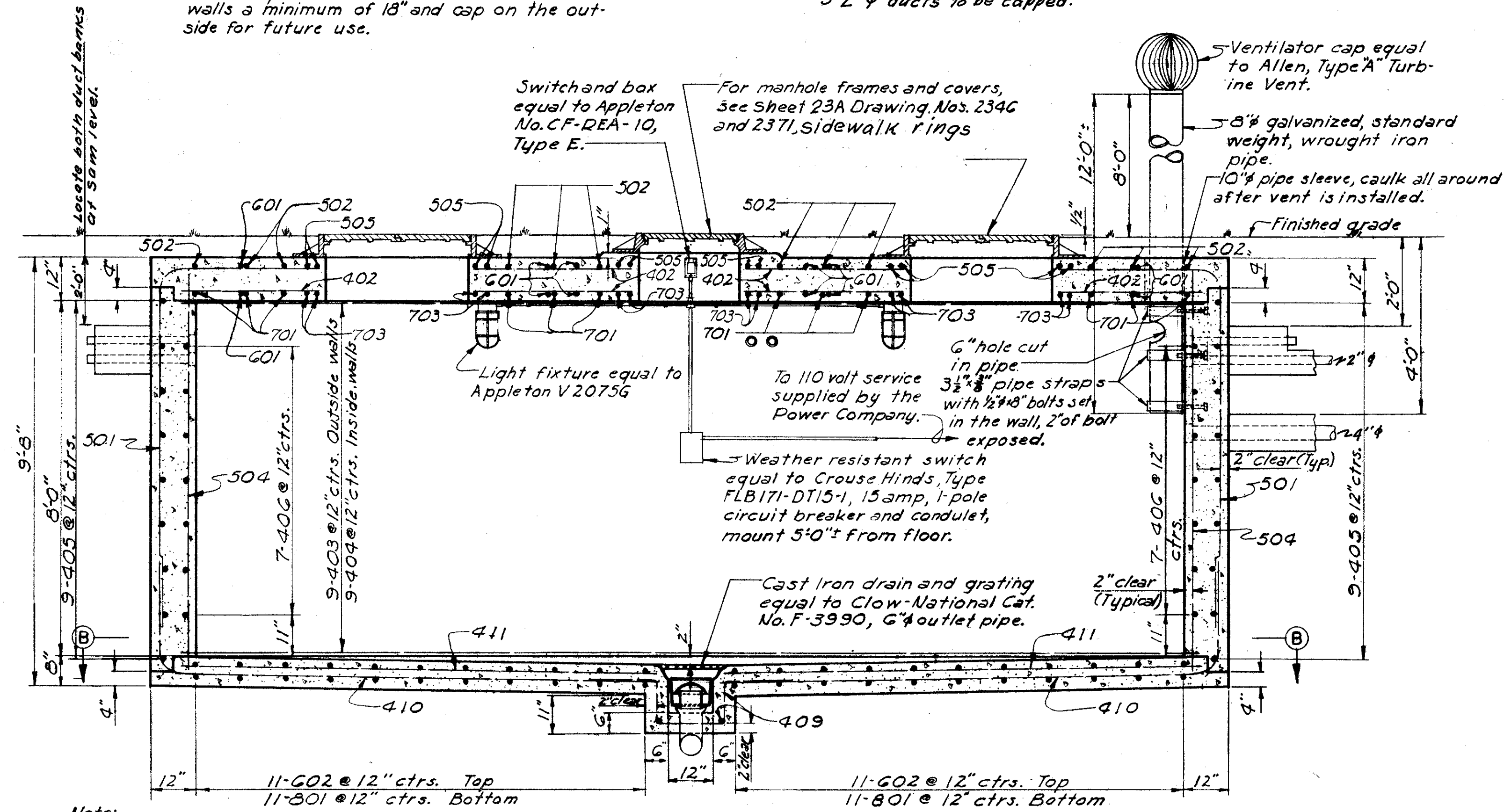
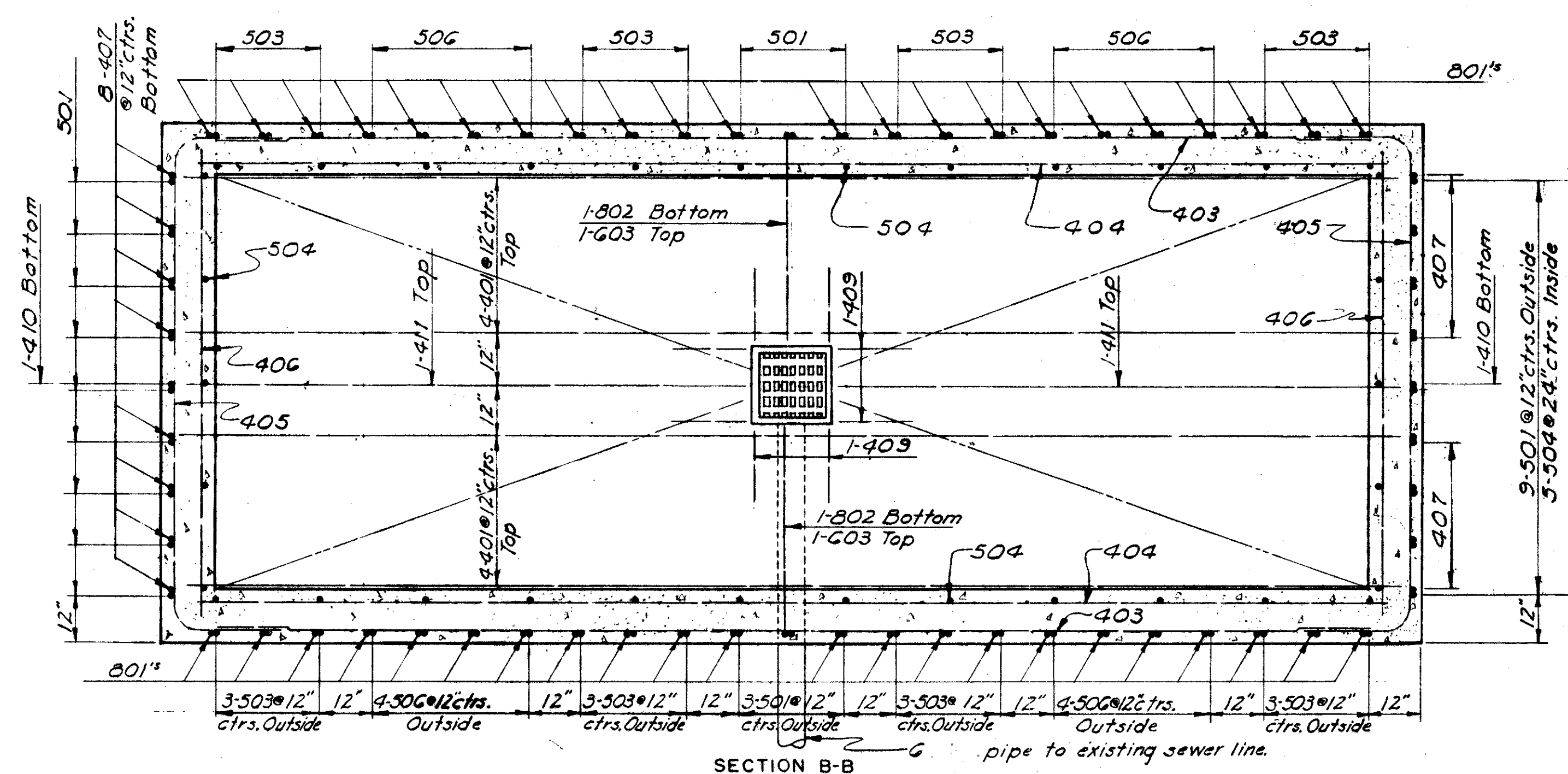
SCALE 1" = 100'
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE AT DATE 2-6-57 CONSULTING ENGINEERS
TRCD. DATE KANSAS CITY, CLEVELAND, NEW YORK
CKD. JES DATE 5-9-57 914 SHEET 15

UNDERDECK LIGHTING WIRING DIAGRAM
No scale

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
REGULATOR VAULT



Notes: Where initial use of indicated duct banks is not required, extend the ducts thru the walls a minimum of 18" and cap on the outside for future use.
2-2" ducts to be capped
3-2" ducts to be capped
1-2" duct to pull box of light at Sta. G+72 E. 9th.
3-2" ducts to be capped.



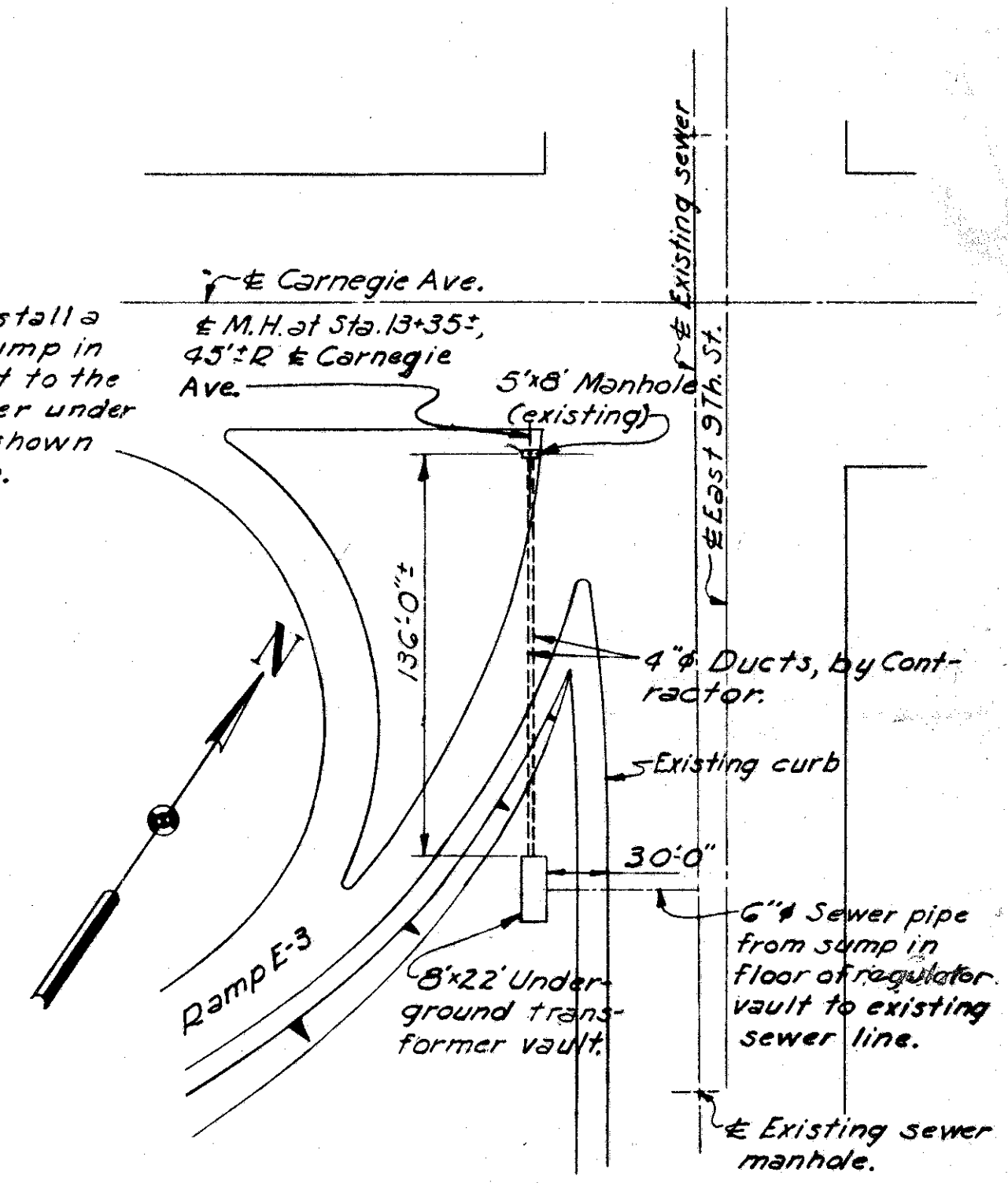
Note: 1/4"x10'0" ground rods shall be placed in diagonal corners of the vault with 6" of the rod extending above the floor. Additional ground rods shall be driven if required to insure not over 5 ohm grounds.
SECTION A-A
REGULATOR VAULT
Scale: 1/2"=1'-0"

Note: The top and sides of transformer vault shall be provided with Type B waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004 polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6" with the top lap placed in the direction of the spreading of the concrete.

REINFORCING BAR SCHEDULE						
MARK	SIZE	NO. REQD.	LENGTH	TYPE	DIMENSIONS	
					A	B
401	4	14	23'-0"	Str.		
402	18	3'-0"	Str.			
403	18	22'-0"	Str.			
404	18	22'-6"	Str.			
405	18	13'-6"	105	2'-0"	9'-6"	
406	14	9'-0"	Str.			
407	8	26'-2"	104	2'-6"	23'-8"	
408	6	21'-0"	Str.			
409	4	6'-6"	121	1'-6"	14'-0"	
410	2	13'-6"	104	2'-6"	11'-0"	
411	2	10'-6"	Str.			
501	3	24	12'-0"	104	3'-6"	8'-6"
502	12	6'-6"	Str.			
503	24	10'-8"	104	2'-8"	8'-0"	
504	34	9'-0"	Str.			
505	24	4'-6"	Str.			
506	16	11'-7"	104	3'-7"	8'-6"	
601	G	24	5'-0"	Str.		
602	22	8'-6"	Str.			
603	2	3'-6"	Str.			
701	7	12	8'-6"	Str.		
702	22	3'-0"	Str.			
703	24	4'-6"	Str.			
801	B	22	14'-8"	105	2'-6"	9'-8"
802	1	2	6'-7"	104	2'-6"	4'-1"

R = Minimum of 15 bar diameters

Note: Contractor to install a 6" I-2 pipe from the sump in the floor of the vault to the existing storm sewer under East 9th Street, as shown on the Location Plan.



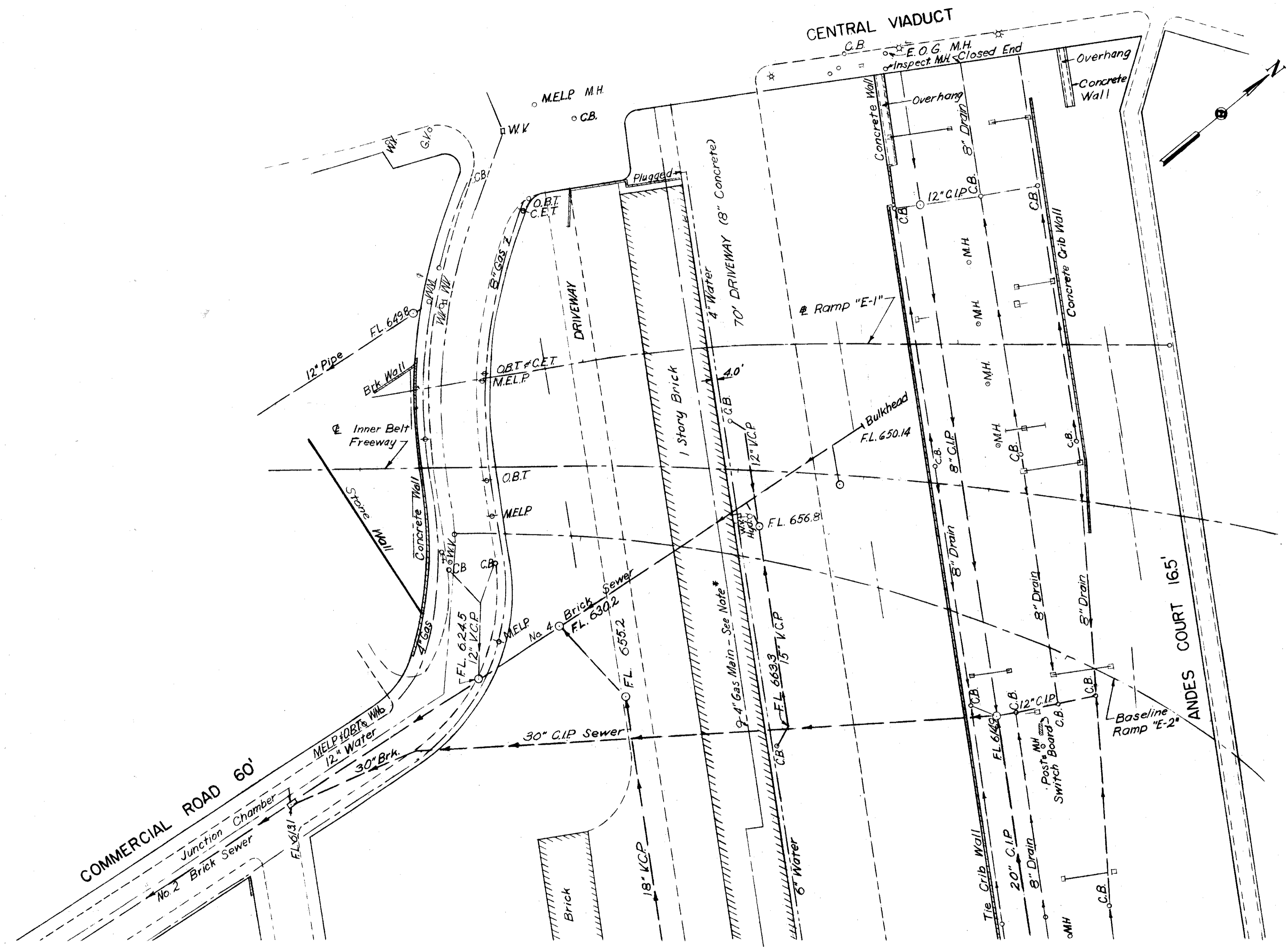
LOCATION PLAN
Scale: 1"=50'-0"

REVISIONS
 FEB 23 1953

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

17
 117

CUYAHOGA COUNTY
 CITY OF CLEVELAND
 INNER BELT FREEWAY - PART 5
 EAST APPROACH TO CENTRAL VIADUCT
 CUY-42-(17.43-18.02)
 EXISTING UTILITIES



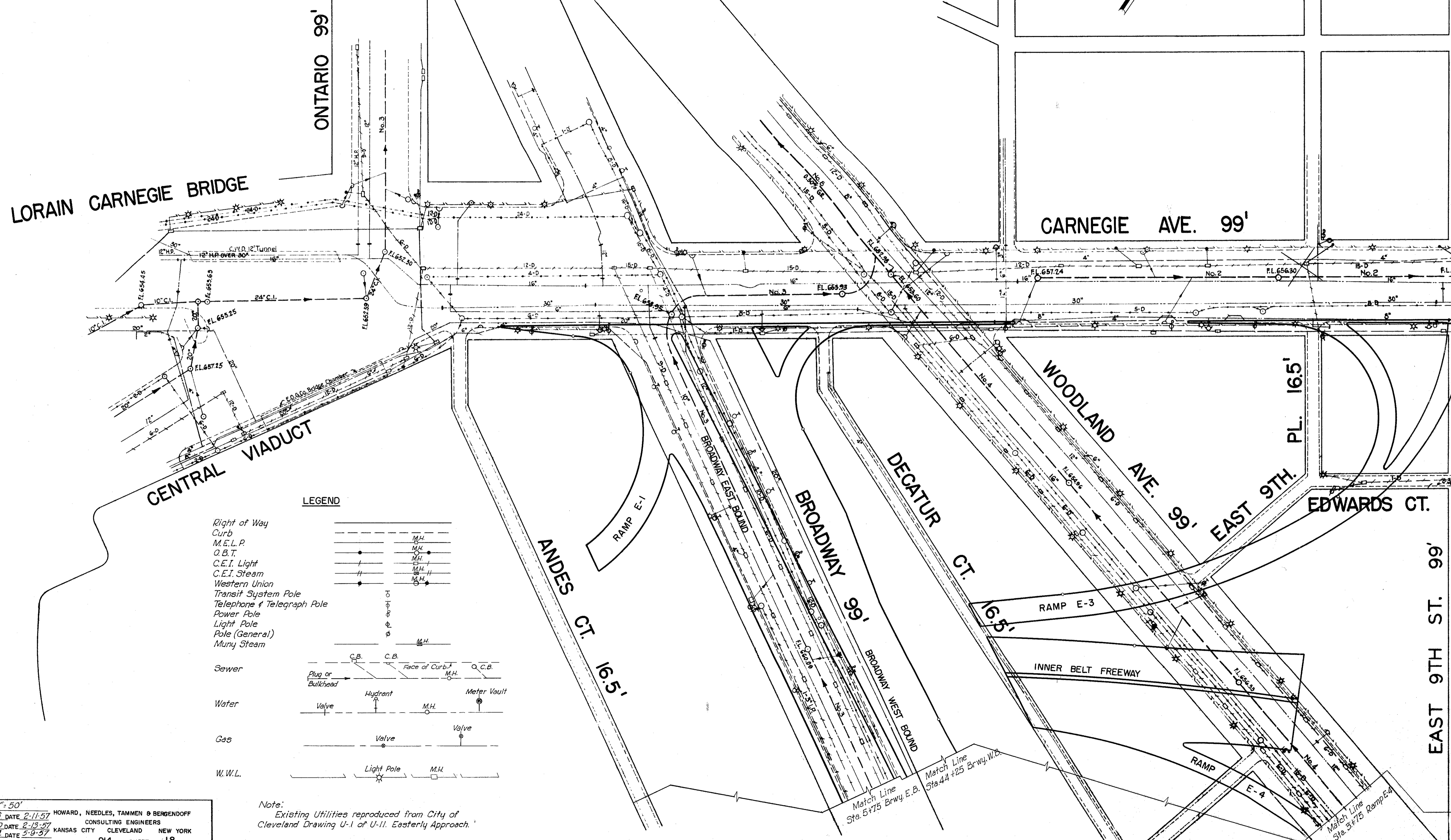
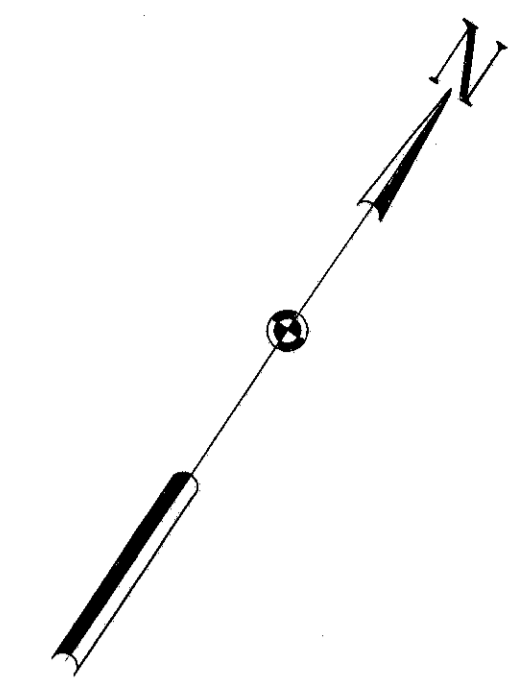
* Note:
 Shown on N.Y.C. & St. L. R.R. Drawing C-59008-
 "Proposed Building Units", Feb. 26, 1929, as "Proposed
 4\"/>

REPRODUCED
FEB 23 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

18
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
EXISTING UTILITIES



LEGEND

Right of Way	---	M.H.
Curb	---	M.H.
M.E.L.P.	---	M.H.
O.B.T.	---	M.H.
C.E.I. Light	---	M.H.
C.E.I. Steam	---	M.H.
Western Union	---	M.H.
Transit System Pole	---	M.H.
Telephone & Telegraph Pole	---	M.H.
Power Pole	---	M.H.
Light Pole	---	M.H.
Pole (General)	---	M.H.
Muny Steam	---	M.H.
Sewer	---	M.H.
Water	---	M.H.
Gas	---	M.H.
W.W.L.	---	M.H.

Note:
Existing Utilities reproduced from City of
Cleveland Drawing U-1 of U-11, Easterly Approach.

SCALE 1" = 50'
MADE J.E.S. DATE 2-11-57 HOWARD, NEEDLES, TAMMEN & BERGENOFF
TRCD B.M. DATE 2-13-57 CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
CKD H.R.M. DATE 2-9-57
914 SHEET 18

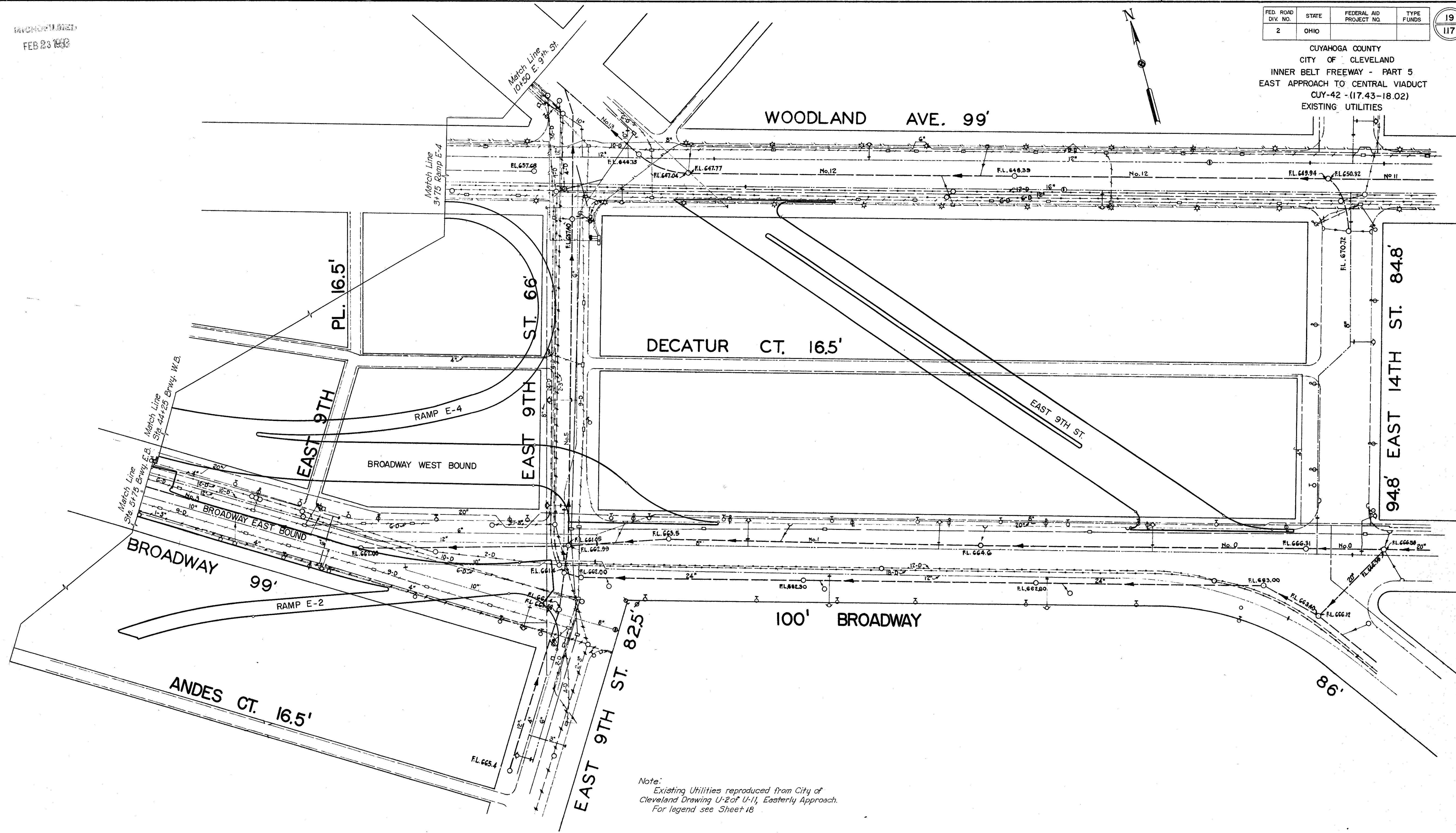
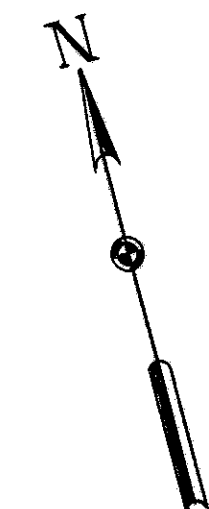
Match Line
Sta. 10+50 E. 9th St.

APPROVED
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

19
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42 - (17.43-18.02)
EXISTING UTILITIES



Note:
Existing Utilities reproduced from City of
Cleveland Drawing U-2 of U-11, Easterly Approach.
For legend see Sheet 18

SCALE 1" = 50'
MADE U.F.S. DATE 2-14-57 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. D.M.O. DATE 2-15-57 CONSULTING ENGINEERS
CKD. H.K.M. DATE 5-9-57 KANSAS CITY CLEVELAND NEW YORK
914 SHEET 19

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
DRAINAGE PLAN

CODE	LOCATION	DESCRIPTION	ELEV.	REMARKS
A-1	57+08.5 Freeway	6.2" Inlet	688.89	See Note No. 5
A-2	56+90 Freeway	2" L.I.	690.00	for all Standard
A-3	55+80 Freeway	2" L.I.	689.69	No. 2 Inlets
A-4	55+25 Freeway	2" L.I.	689.88	
A-5	40+00 B.W.B.	52" Pt.	674.53	
A-6	43+12.7 B.W.B.	52" Pt.	672.14	
A-7	47+50 B.W.B.	74" Pt.	667.65	
A-8	48+66 B.W.B.	74" Pt.	668.20	
A-9	48+03 B.W.B.	74" Pt.	667.39	
A-10	12+37.5 Carnegie	37.5" Pt.	670.7+	
A-11	0+71 E "E-3"	2" Pt.	670.37	
A-12	5+92 E. 9 th St.	33.3" Pt.	671.2+	
A-13	1+00 "E-3" Conn.	2" Pt.	670.58	
A-14	14+85 E. 9 th St.	26" Pt.	672.67	
A-15	15+55 E. 9 th St.	26" Pt.	672.45	
A-16	16+25 E. 9 th St.	26" Pt.	672.66	
A-17	14+85 E. 9 th St.	26" L.I.	672.67	
A-18	15+55 E. 9 th St.	26" L.I.	672.45	
A-19	16+25 E. 9 th St.	26" L.I.	672.66	
A-20	10+26 "E-2"	2" Pt.	673.05	
A-21	9+93 "E-2"	2" Pt.	672.87	
A-22	9+25 "E-2"	18" Pt.	671.3	Top of Grate 671.3
A-23	6+00 B.E.B.	35" Pt.	671.37	
A-24	4+15 B.E.B.	35" Pt.	669.94	
A-25	1+73 B.E.B.	40.5" Pt.	668.65	
A-26	2+00 "E-1"	45" L.I.	667.8	Top of Grate 667.8
A-27	1+90 "E-1"	18" Pt.	666.3	Top of Grate 666.3
A-28	1+42 "E-1"	2" Pt.	668.11	
A-29	1+00 "E-1"	2" Pt.	668.37	
A-30	7+75 B.E.B.	35" L.I.	671.0	Top of Grate 671.0
A-31	5+55 "E-3"	12" Pt.	668.0	Top of Grate 668.0
A-32	1+00 "E-3"	20" Pt.	668.1	Top of Grate 668.1
A-33	3+15 "E-4"	19" Pt.	669.2	Top of Grate 669.2
A-34	59+07 Freeway	110" Pt.	672.5	Top of Grate 672.5
A-35	5+01 "E-4"	47" Pt.	674.00	Top of Grate 674.00
A-36	3+20 "E-3"	60" Pt.	672.5	Top of Grate 672.5
A-37	1+14 "E-4"	64" Pt.	670.7	Top of Grate 670.7
A-50	56+70 Freeway	78" L.I.	682.3	Provide Drop Pipe
A-51	6+23 B.E.B.	21" Std. No. 1	672.72	Manhole
A-52	5+33 "E-2"	9" Pt.	633.4	Std. No. 1 Manhole
A-53	47+80 Freeway	27" L.I.	668.5+	Std. No. 2 Manhole

CODE	LOCATION	DESCRIPTION	ELEV.	REMARKS
B-1	8+27 B.E.B.	3" L.I.	673.77	Adjust to Grade
B-2	4+14 B.E.B.	2" Pt.	670.63	Adjust to Grade
B-3	0+37 B.E.B.	19" L.I.		Undisturbed
B-4	5+43 E "E-3"	11.5" Pt.	668.5+	Adjust to Grade
B-5	11+60 Carnegie	10" L.I.		Undisturbed
B-6	5+62 E. 9 th St.	22" Pt.		Undisturbed
B-7	10+23 E. 9 th St.	2" Pt.		Undisturbed
B-8	18+90 E. 9 th St.	45" Pt.		Abandon
B-9	0+47 B.E.B.	27" Pt.		Abandon
B-10	49+12 B.W.B.	13" Pt.		Abandon
B-11	5+82 Carnegie	37" Pt.		Abandon
B-12	7+75 Carnegie	47" Pt.		Abandon
B-13	8+90 Carnegie	36" Pt.		Undisturbed
B-14	10+40 Carnegie	37" Pt.		Undisturbed
B-15	5+72 E. 9 th St.	24" Pt.		Abandon
B-16	8+34 E. 9 th St.	29" Pt.		Undisturbed
B-17	4+18 "E-3"	30" L.I.		Abandon
B-18	56+58 Freeway	43" L.I.		Abandon
B-19	57+35 Freeway	12" L.I.		Abandon
B-20	4+83 "E-4"	90" L.I.		Abandon
B-21	11+95 E. 9 th St.	42" Pt.		Undisturbed
B-22	12+50 E. 9 th St.	10" L.I.		Undisturbed
B-23	4+36 "E-4"	80" L.I.		Abandon
B-24	4+70 "E-4"	55" L.I.		Abandon
B-25	4+80 "E-4"	69" L.I.		Undisturbed
B-26	4+80 "E-4"	105" L.I.		Abandon
B-27	10+61 B.E.B.	14" L.I.		Undisturbed
B-28	10+54 B.E.B.	15" Pt.		Undisturbed
B-29	10+40 B.E.B.	56" Pt.		Undisturbed
B-30	10+34 B.E.B.	110" Pt.		Abandon
B-31	38+35 B.W.B.	35" L.I.		Abandon
B-32	7+75 B.E.B.	35" L.I.		Remove
B-33	6+90 B.E.B.	30" Pt.		Abandon
B-34	4+34 B.E.B.	25" L.I.		Abandon
B-35	3+43 B.E.B.	25" Pt.		Abandon
B-36	0+82 "E-2"	73" Pt.		Undisturbed
B-37	4+70 "E-2"	67" Pt.		Undisturbed
B-38	4+80 "E-2"	59" Pt.		Undisturbed
B-39	5+10 "E-2"	38" Pt.		Undisturbed
B-40	5+34 "E-2"	19" Pt.		Undisturbed
B-41	8+73 Carnegie	72" Pt.		Abandon

Note:
 End of existing sewer, remaining in place, shall be sealed with an 8" brick bulkhead in accordance with 4th paragraph of Item 16.03. Payment for bulkhead shall be included in unit price bid for Item E-12. Pipe Removed, over 15' & Ramp E-1.

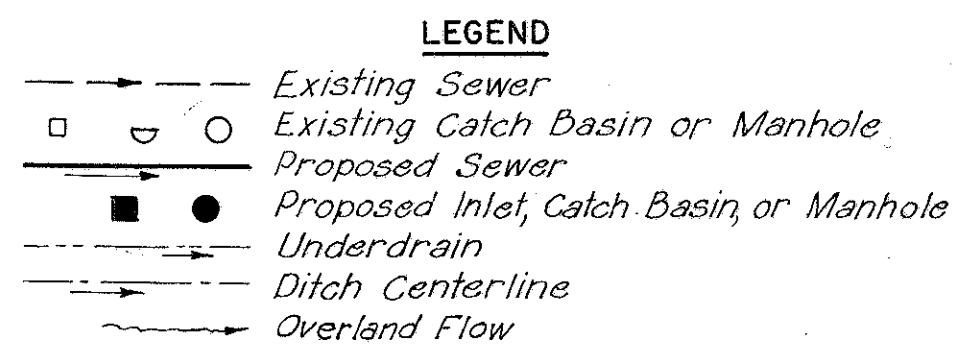
CODE	STREET	FROM	TO	ITEM I-2 LIN. FT.									
				CLASS A			CLASS A.U.P.			CLASS B			
				12"	15"	18"	12"	15"	18"	12"	15"	18"	
P-1	Freeway	A-4	A-3										
P-2	Freeway	A-3	A-2										
P-3	Freeway	A-1	A-2										
P-4	Freeway	A-2	A-50										
P-5	Pt. of B.W.B.	A-5	E-5										
P-6	Pt. of "E-2"	A-22	A-21										
P-7	Ramp "E-2"	A-20	A-21										
P-8	B.E.B.	A-21	B-1										
P-9	Ramp "E-4"	A-33	A-6										
P-10	B.W.B.	A-6	A-51										
P-11	B.E.B.	A-23	A-51										
P-12	B.E.B.	A-24	B-2										
P-13	Pt. of B.E.B.	A-26	A-25										
P-14	Ramp "E-1"	A-25	A-28										
P-15	Pt. of "E-1"	A-27	A-28										
P-16	Ramp "E-1"	A-28	A-29										
P-17	B.E.B.	A-29	B-3										
P-18	B.W.B.	A-7	A-9										
P-19	B.W.B.	A-9	A-8										
P-20	B.W.B.	A-8	B-3										
P-21	Woodland	A-31	B-4										
P-22	Lt. of "E-3"	A-36	A-50										
P-23	Pt. of "E-3"	A-32	A-11										
P-24	Ramp "E-3"	A-11	A-10										
P-25	Carnegie	A-10	B-5										
P-26	"E-3" Conn.	A-13	B-6										
P-27	E. 9 th St.	A-12	B-6										
P-28	E. 9 th St.	A-34	B-7										
P-29	E. 9 th St.	A-16	A-19										
P-30	E. 9 th St.	A-19	A-18										
P-31	E. 9 th St.	A-15	A-18										
P-32	E. 9 th St.	A-18	A-17										
P-33	E. 9 th St.	A-14	A-17										
P-34	E. 9 th St.	A-17	B-22										
P-35	Pier 2B	Pier 2B	B-36										
P-36	Pier 2E-1	2E-1	A-53										
P-37	Pier 4B	4B	A-52										
P-38	Pier 2E-2	2E-2	A-32										
P-39	B.E.B.	Pier 7B	B-2										
P-40	B.W.B.	Pier 3B	A-51										
P-41	Pier 2E-2	A-52	B-40										
P-42	Piers 3B & 1E-2	1E-2	A-53										
P-43	Ramp "E-4"	A-37	A-33										
TOTAL													

CODE	LOCATION	FROM	TO	SIZE	LENGTH	REMARKS
E-1	Woodland Ave.	B-23	B-19	No. 4	270'	Abandon
E-2	Woodland Ave.	B-19	A-50	No. 4	90'	Abandon
E-3	Woodland Ave.	A-50	B-4	No. 4	180'	Undisturbed
E-4	Woodland Ave.	B-4	West	No. 4		Undisturbed
E-5	E. 9 th St.	B-27	E-6	No. 5	510'	Undisturbed
E-6	New E. 9 th St.	B-22	B-7	No. 13	230'	Undisturbed
E-7	New E. 9 th St.	B-7	North	No. 16		Undisturbed
E-8	Broadway	B-27	B-3	No. 3	1025'	Undisturbed
E-9	Broadway	B-32	E-8	Lateral	30'	Undisturbed
E-10	Pier 3B	A-53	North	No. 4	20'	Remove
E-11	Railroad Yards	A-53	B-36	No. 4	265'	Undisturbed
E-12	Railroad Yards	B-37	SW	30"		Undisturbed
E-13	Pier 2E-2	B-40	B-37	12"	80'	Undisturbed
E-14	Woodland Ave. East	B-22	No. 12			Undisturbed

Note: Size No. 4 Sewer is egg shaped. Area of sewer is equivalent to a 33" diameter pipe.

- NOTES
- Abbreviations:
 Pt. - Right
 Lt. - Left
 U.P. - Under Pavement
 Directions are noted as: E, W, S, & N.
 - Call Letters:
 Drainage structures and pipes are prefixed with the following call letters:
 A - Proposed Structures
 P - Proposed Pipe Sewers
 B - Existing Structures
 E - Existing Pipe Sewers
 The direction of sewer flow is indicated by arrows.

- Elevations:
 Elevations shown in the tables are normal ditch and center of structure for 2-2-A catch basins; top of cover at the center for manholes; normal grade at the intersection of the center line of cover and at curb face for all 2-6, 2-8, and 2-10 inlets.
- Standard No. 2 Inlets:
 The Standard No. 2 Inlets shall be provided with a 2" depression in the pavement at the face of the curb for the length of the inlet. The pavement transition required to obtain the depression should not be longer than 2 feet along the curb nor more than 3 feet toward the center of the pavement.



Sewers are designed by the Rational Formula based on a 10 year storm frequency flowing full. Minimum Velocity of flow is 3.0 F.P.S. for main lines and 2.5 F.P.S. for laterals.

The abandoning of existing manholes shall be in accordance with Section I-16.03 of the Construction and Material Specifications with the following exceptions: (1) The existing inlet and outlet pipes shall be sealed with brick. (2) After the sealing of the existing pipes is completed and the walls removed to the required depth, the manhole shall be filled with sand and compacted in accordance with Section I-16.03.

Where proposed sewer pipes are to be connected into existing sewers, the hole in the existing sewer shall be cut by the City of Cleveland.

Not all sewer pipes connected to existing catch basins are shown on the plans. Where sewer pipes not shown are encountered during construction the pipes shall be cut at the limits of construction and sealed to the satisfaction of the Engineer. Payment for cutting and sealing in accordance with 4th paragraph of Item 16.03 shall be included in the unit price bid for Item E-101 Roadway Excavation.

Where it is necessary under Item I-8, "Manholes Adjusted to Grade", to replace unsatisfactory manhole frame and cover castings, payment for the new castings shall be made at the Contract unit price bid per each for Item I-8, "Manhole Frame and Covers, Furnished and Placed (City Standard Casting)." Payment shall constitute full compensation for furnishing, hauling, and placing all castings and any incidentals necessary to complete the item to the satisfaction of the Engineer.

Standard City Manhole Frames and Covers as shown on Sheet No. 23 shall be used on all new manholes. Where precast reinforced concrete rings are used for Standard No. 1 or No. 2 Manholes, attention is directed to Standard Construction Drawing I-8 M.H. No. 1-A for strength and design requirements.

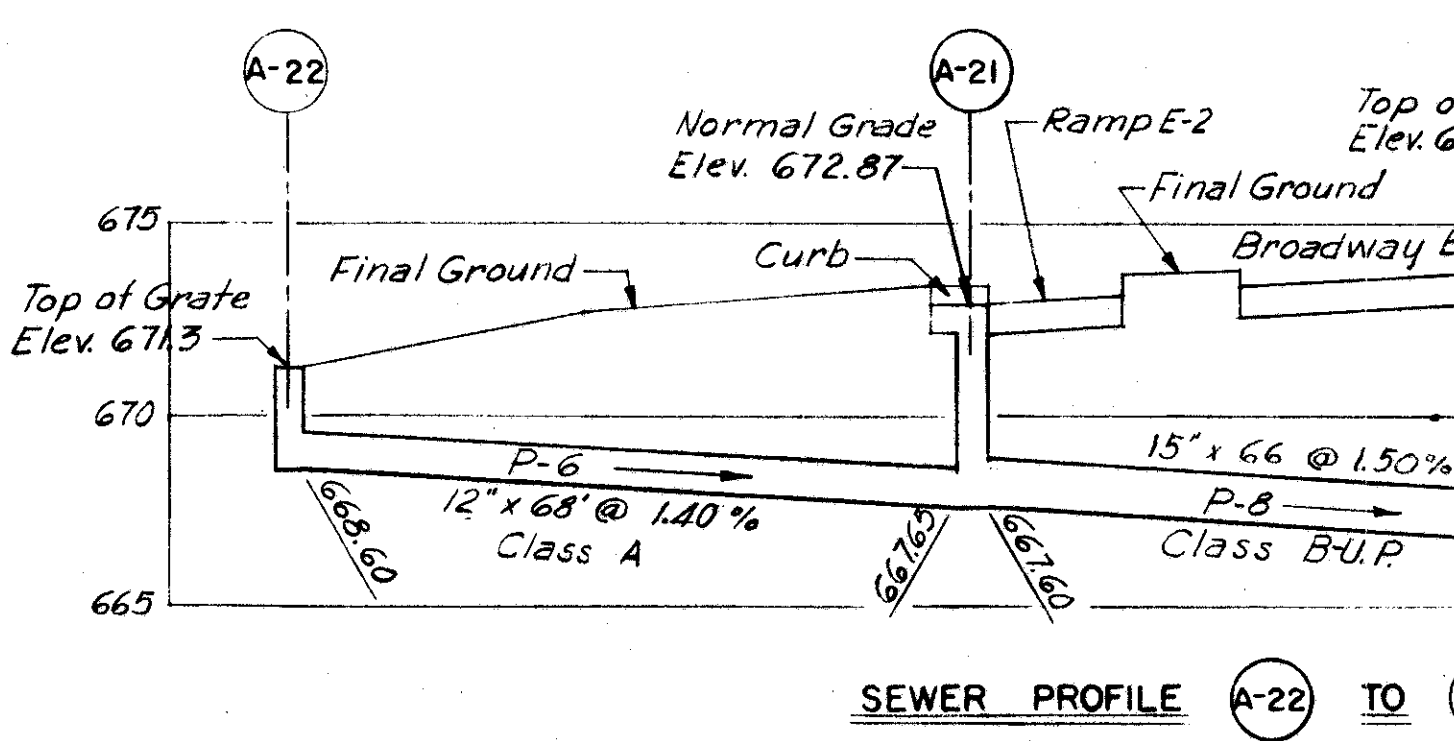
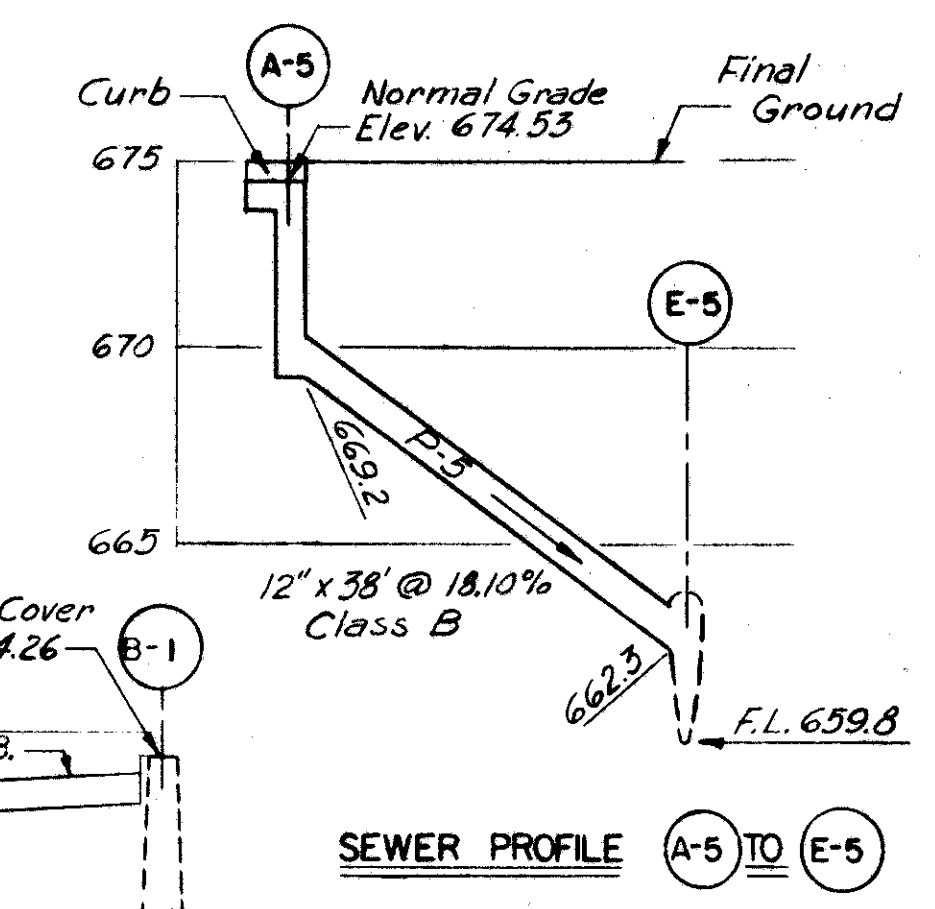
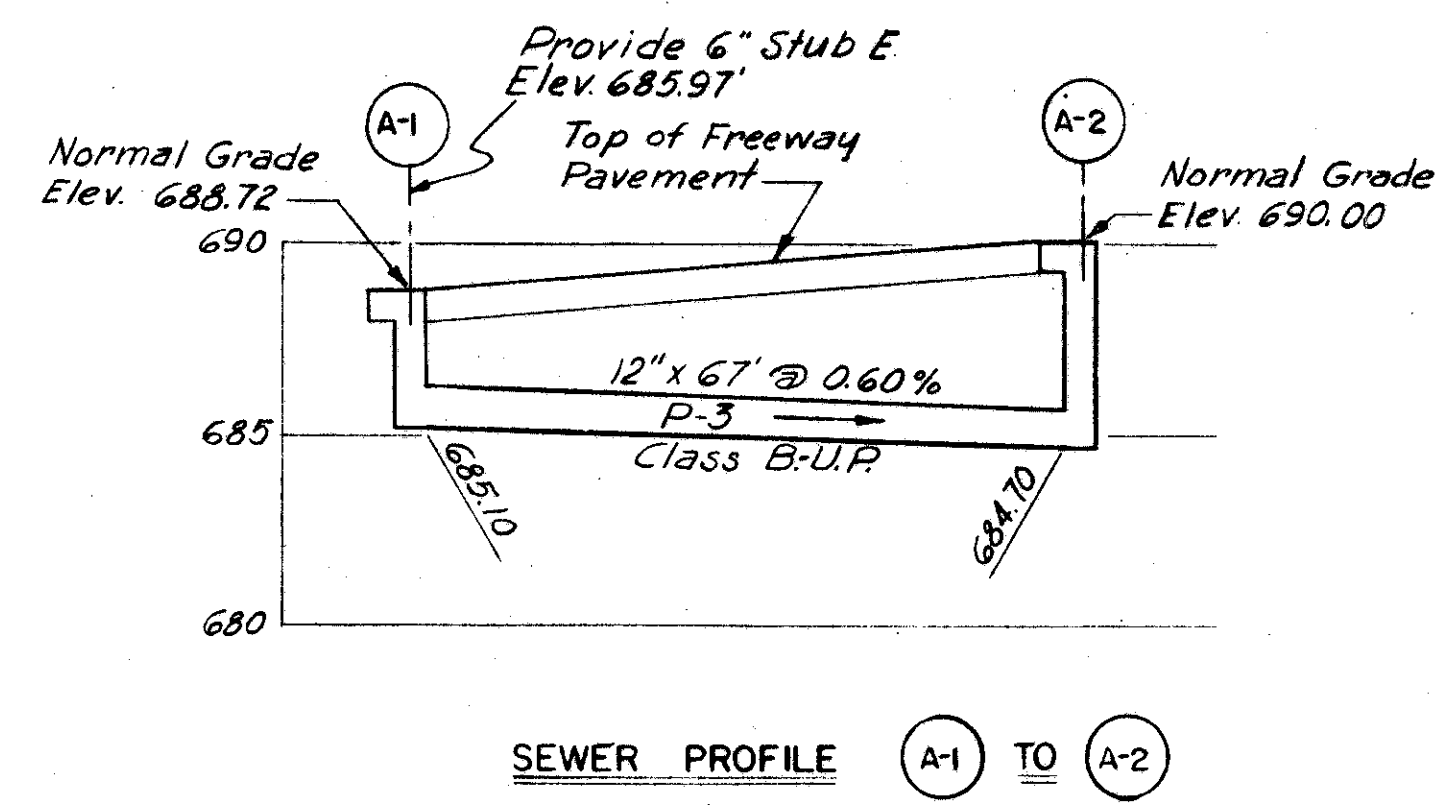
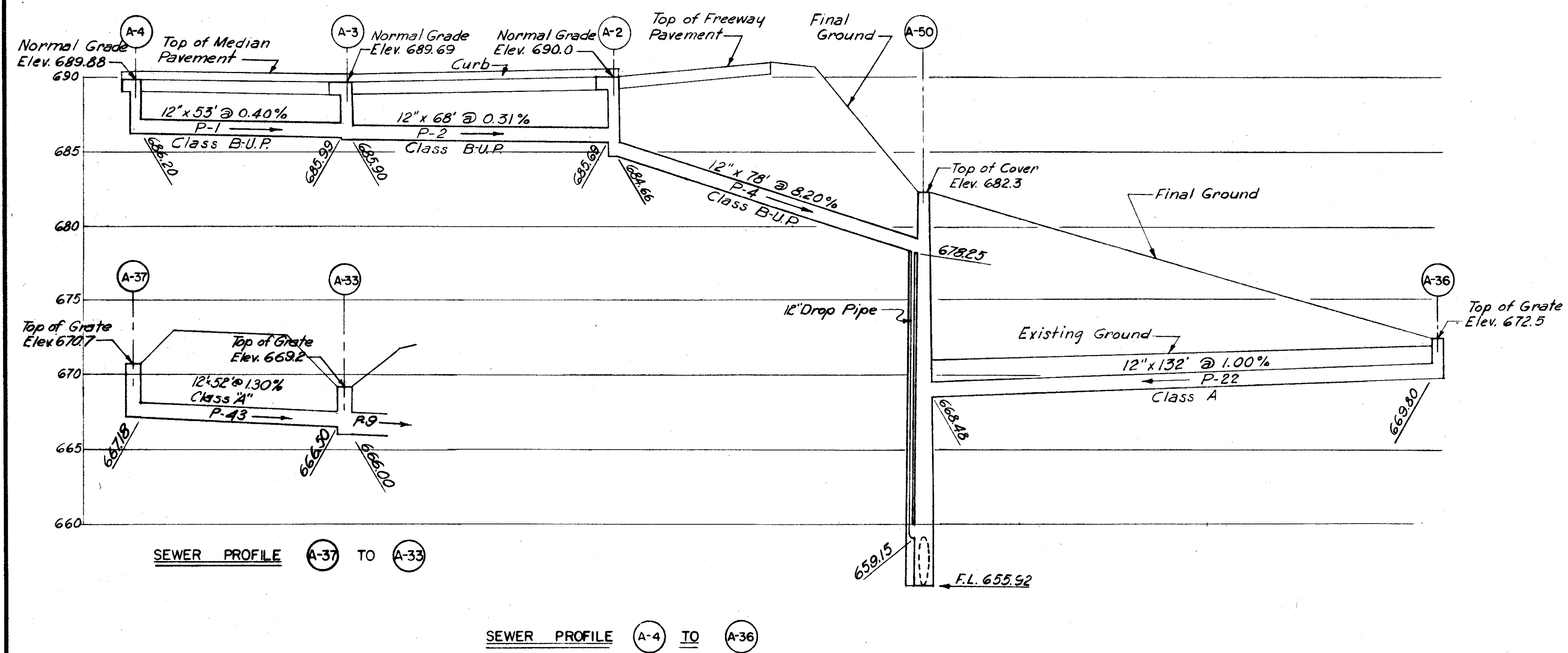
10 ft. of Type 1 Paved Gutter shall be placed on the upstream side of all Standard No. 2-2-A Catch Basins located in a defined 2 foot bottom ditch.

MICROFILMED
FEB 83 1983

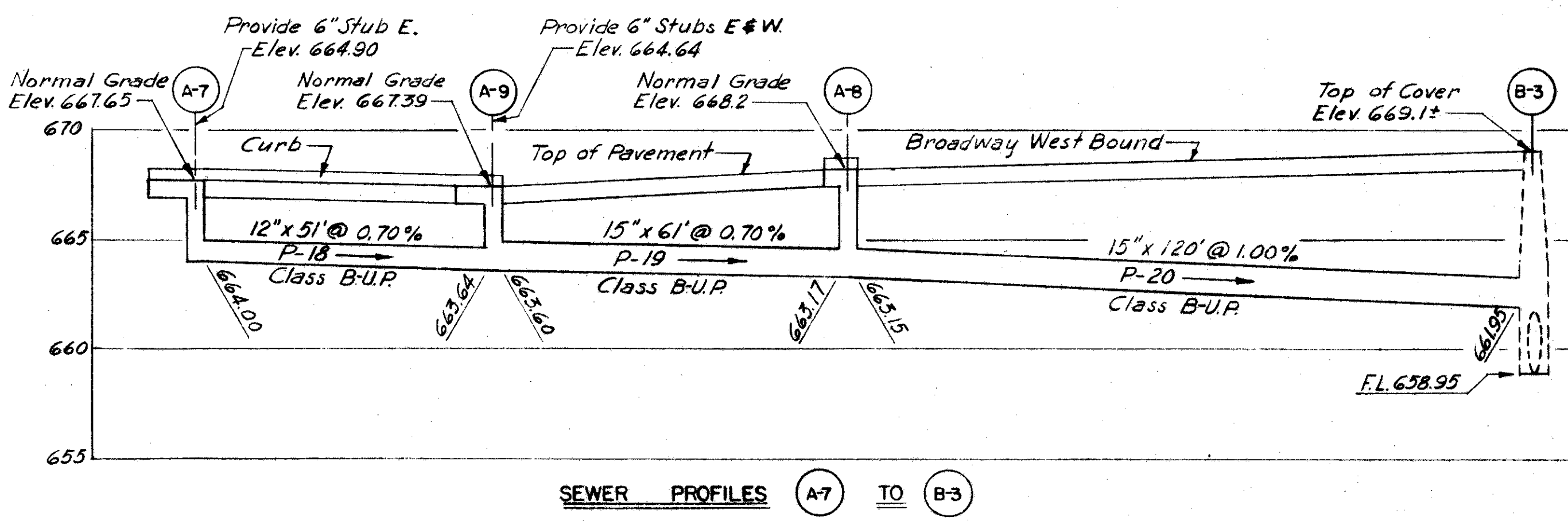
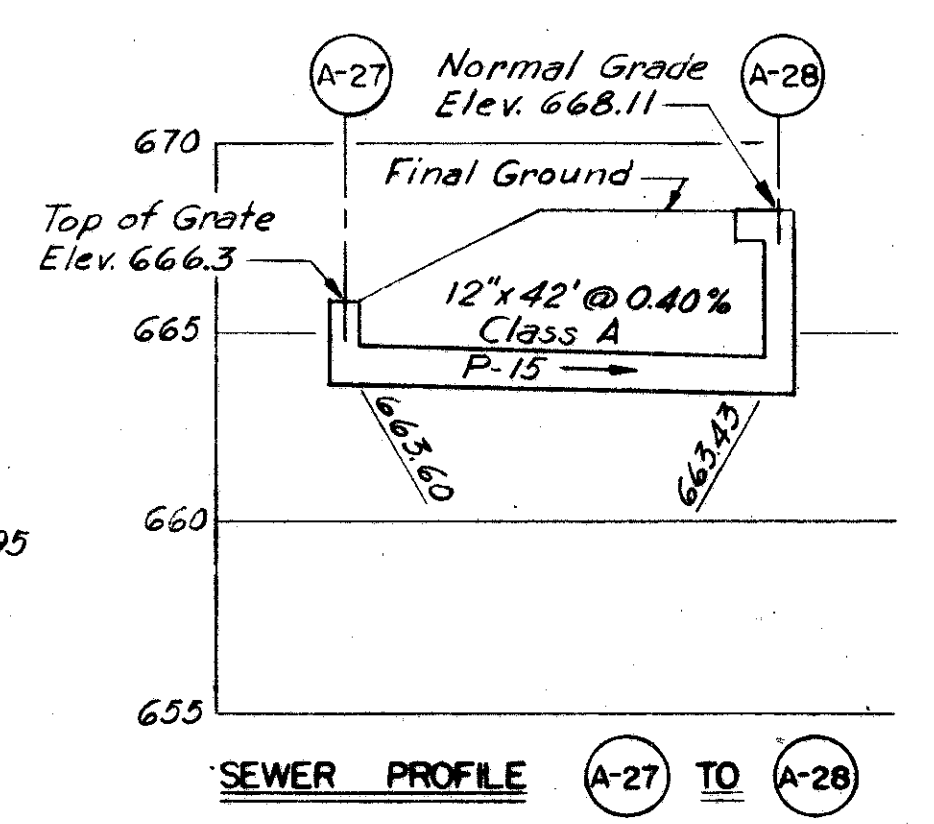
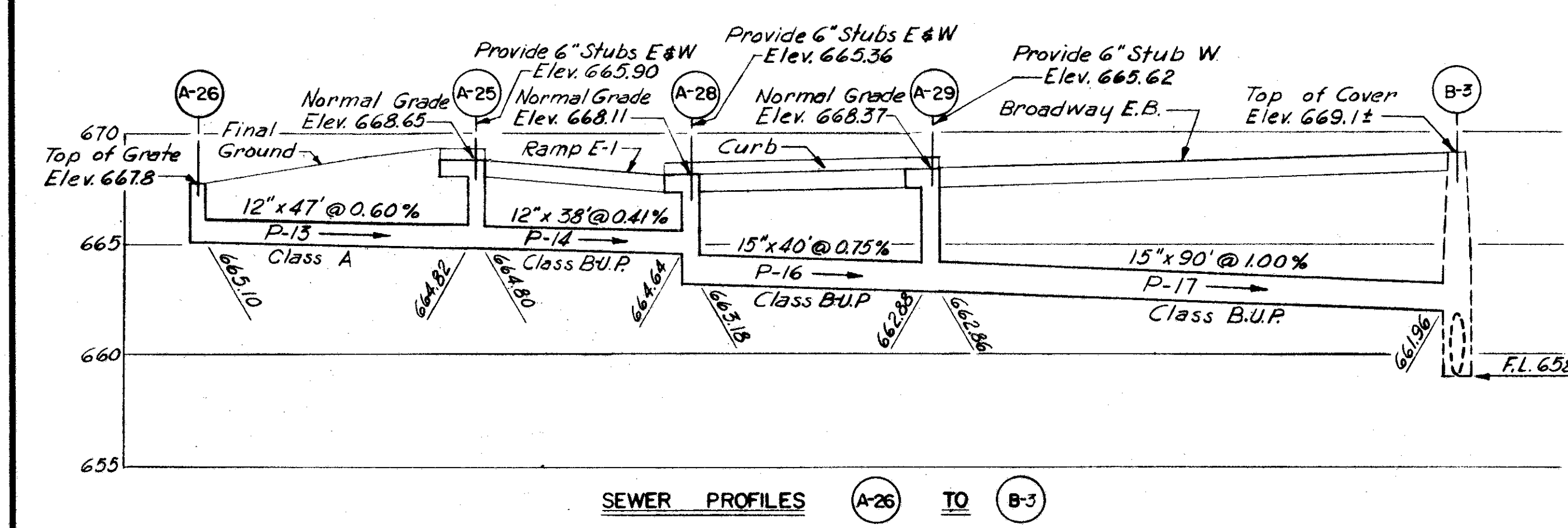
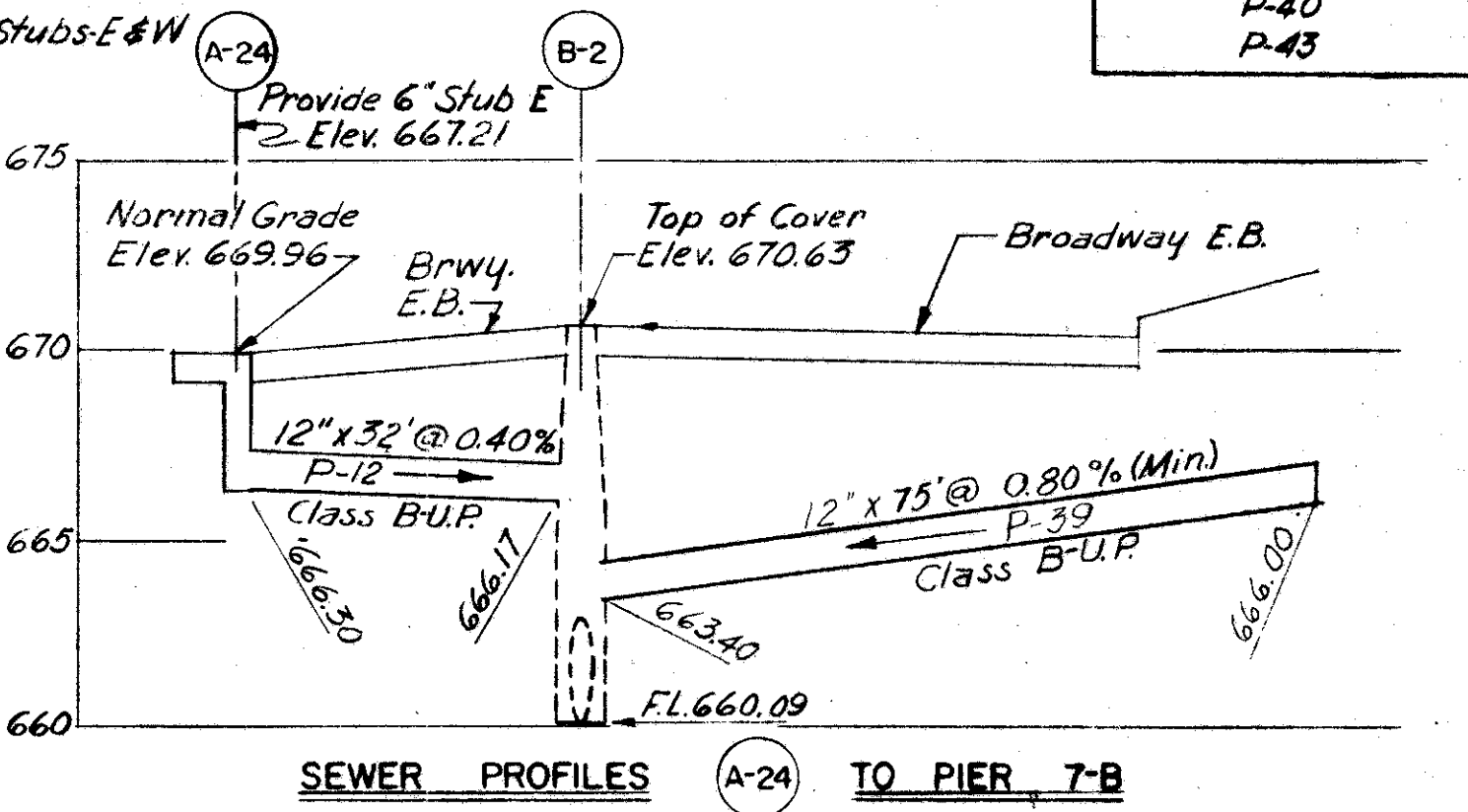
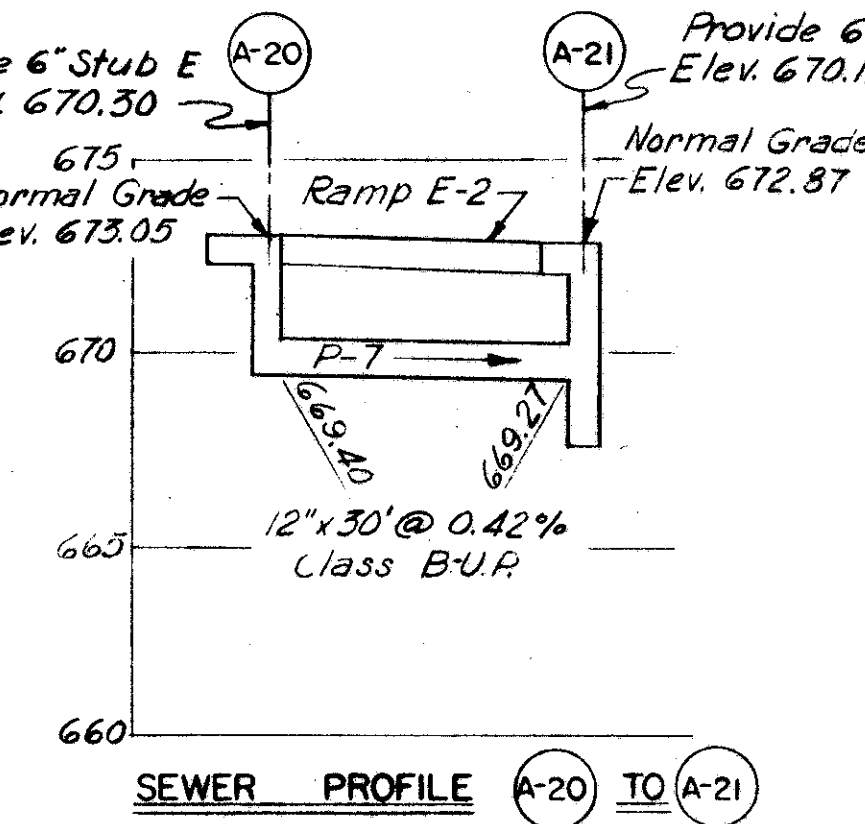
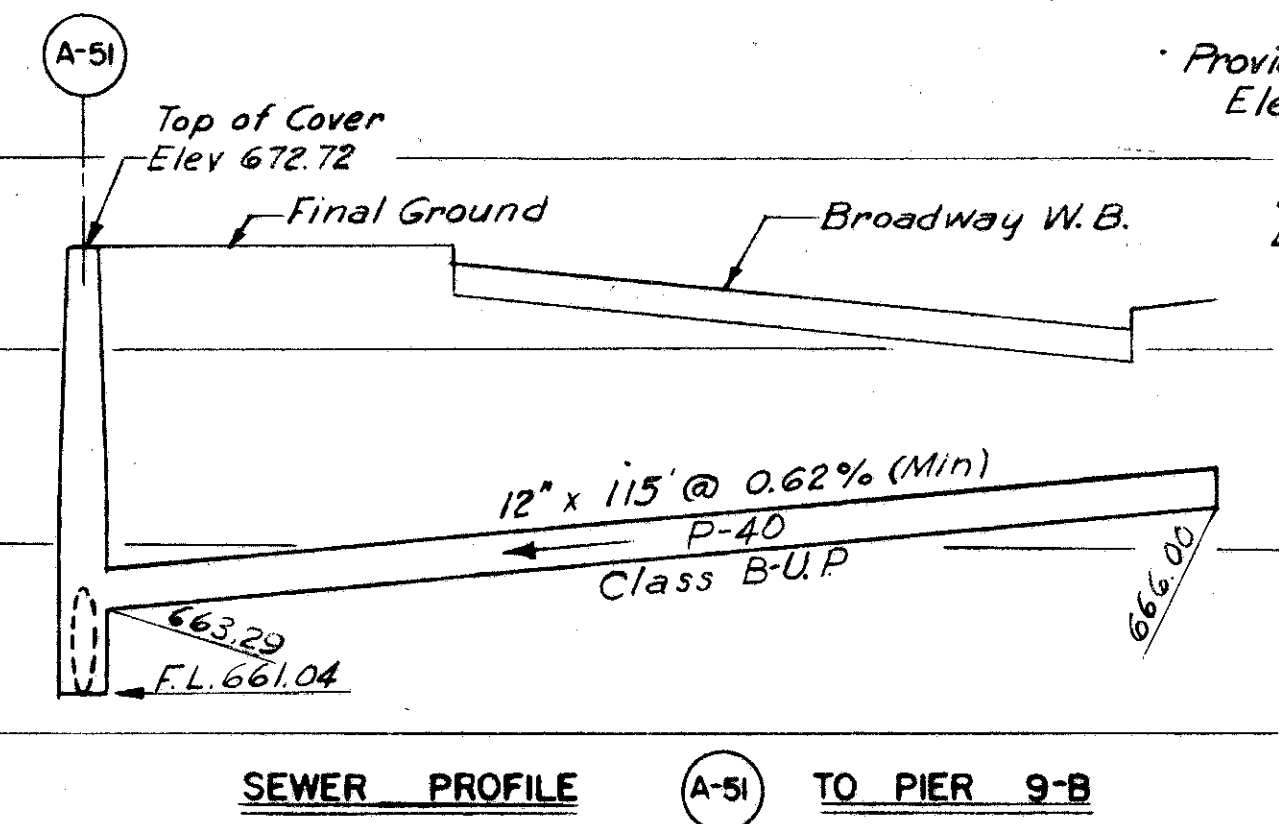
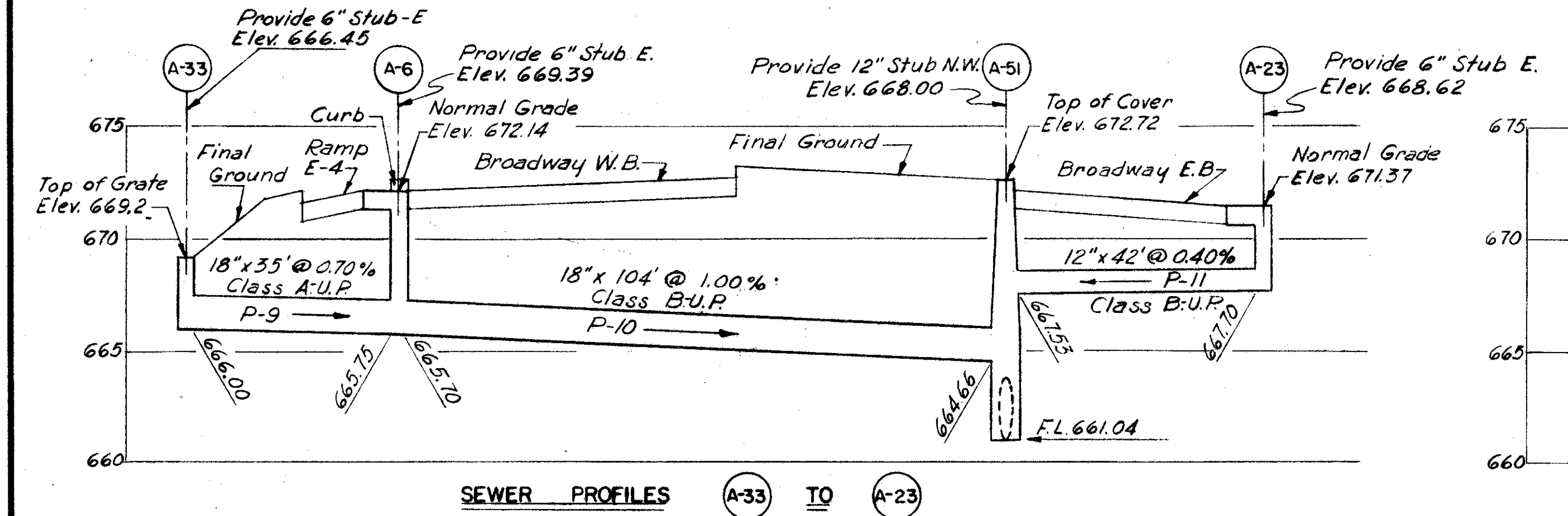
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

21
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
SEWER PROFILES



- LIST OF SEWER PROFILES on this sheet
- P-1 thru P-20
 - P-22
 - P-39
 - P-40
 - P-43

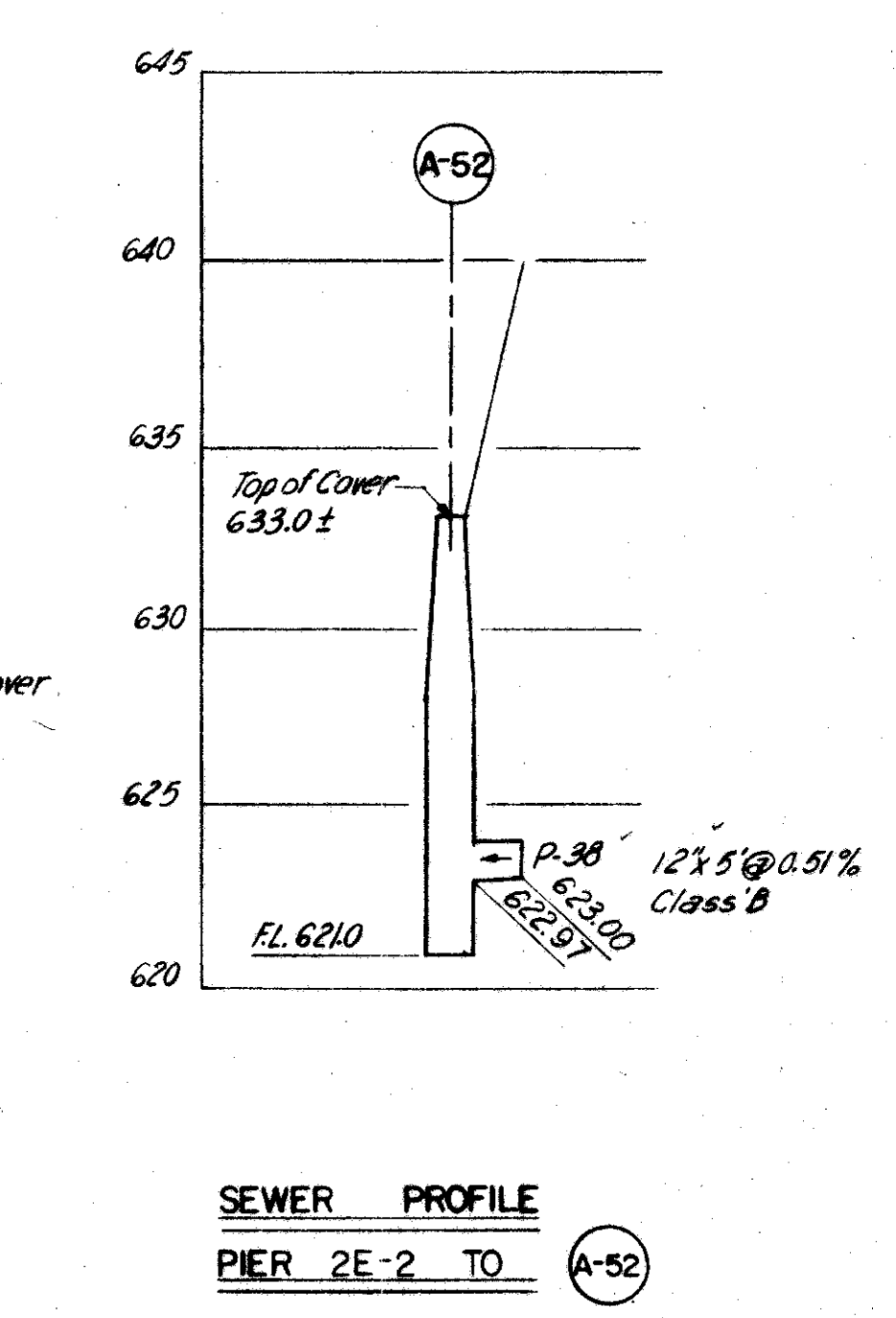
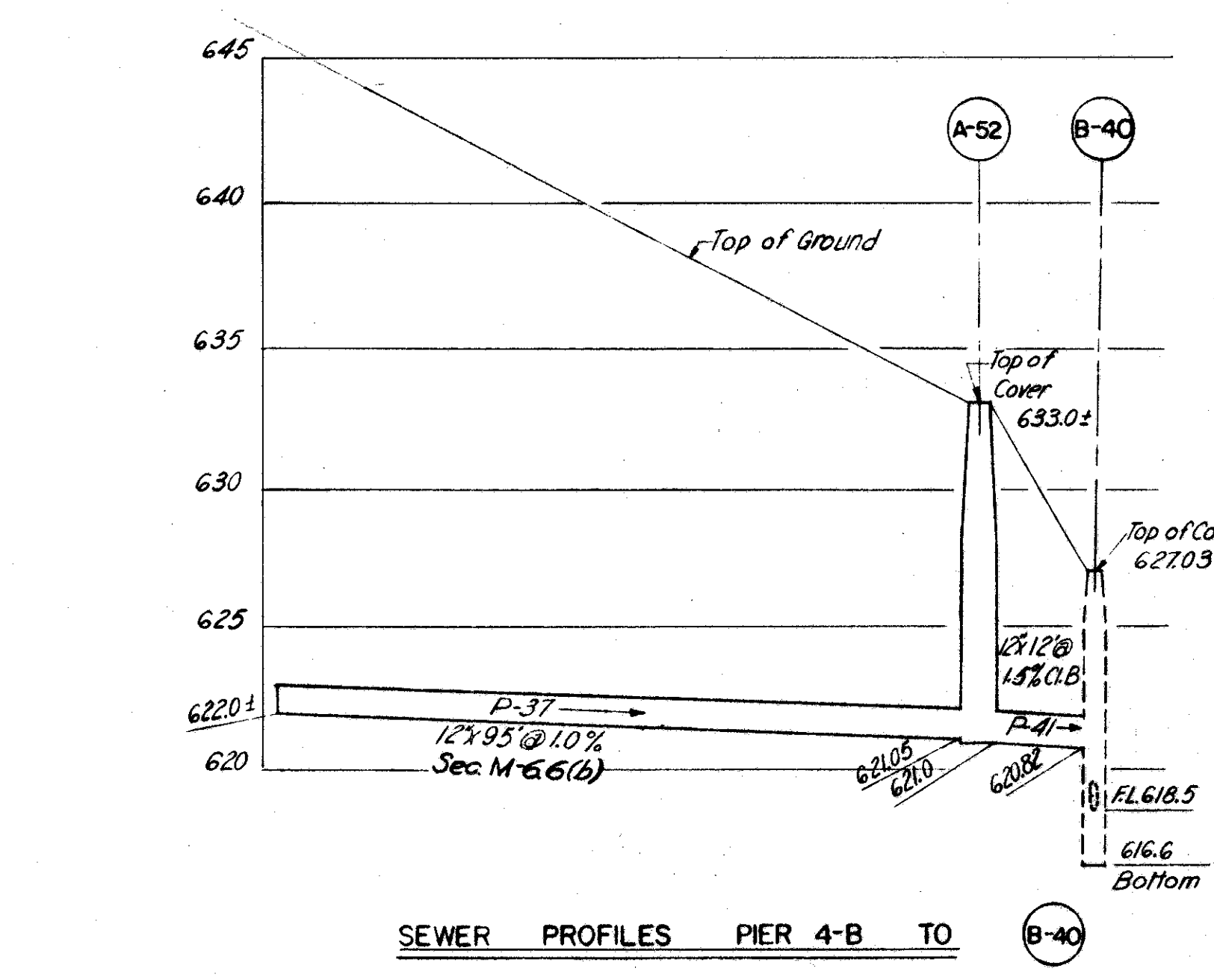
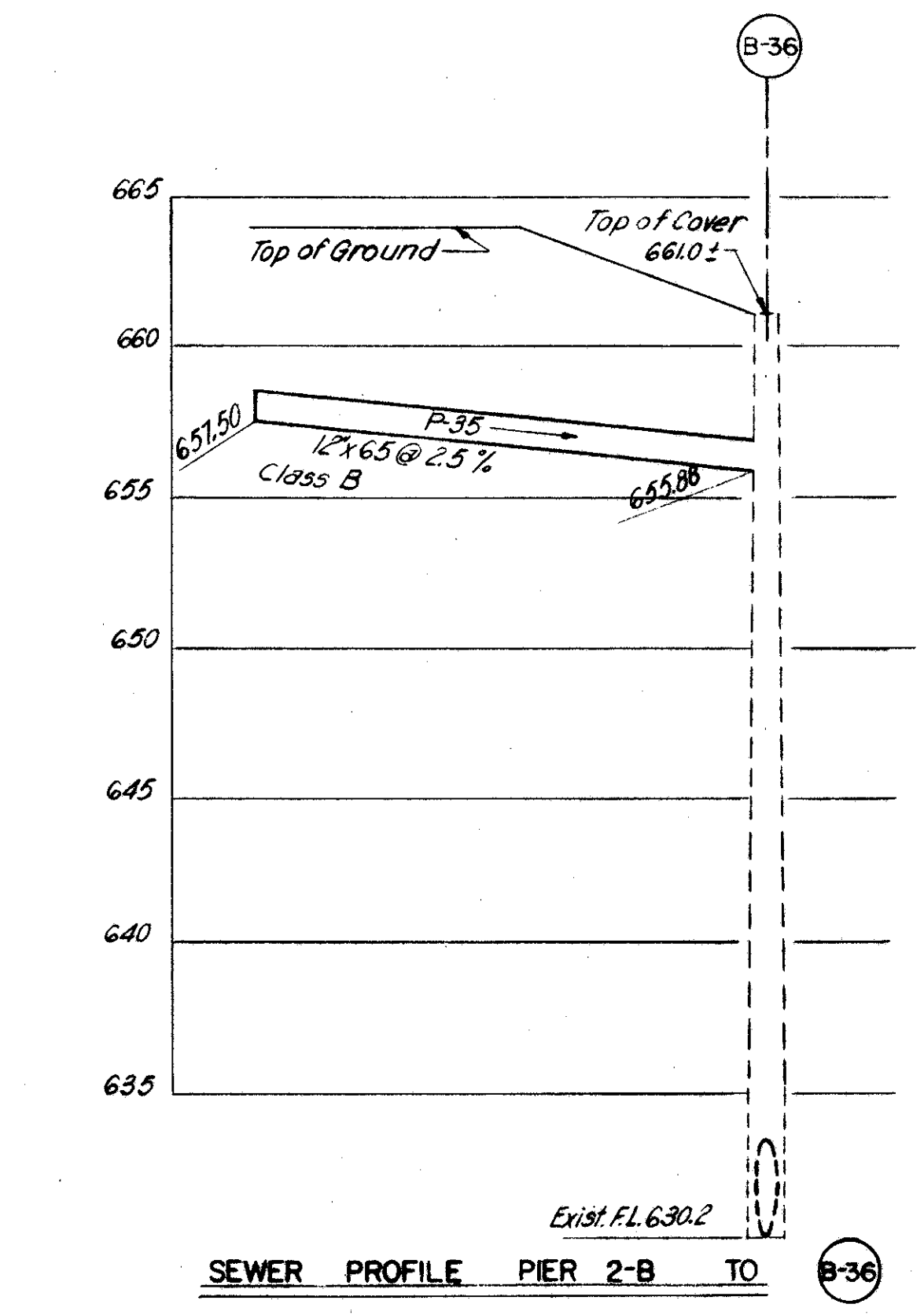
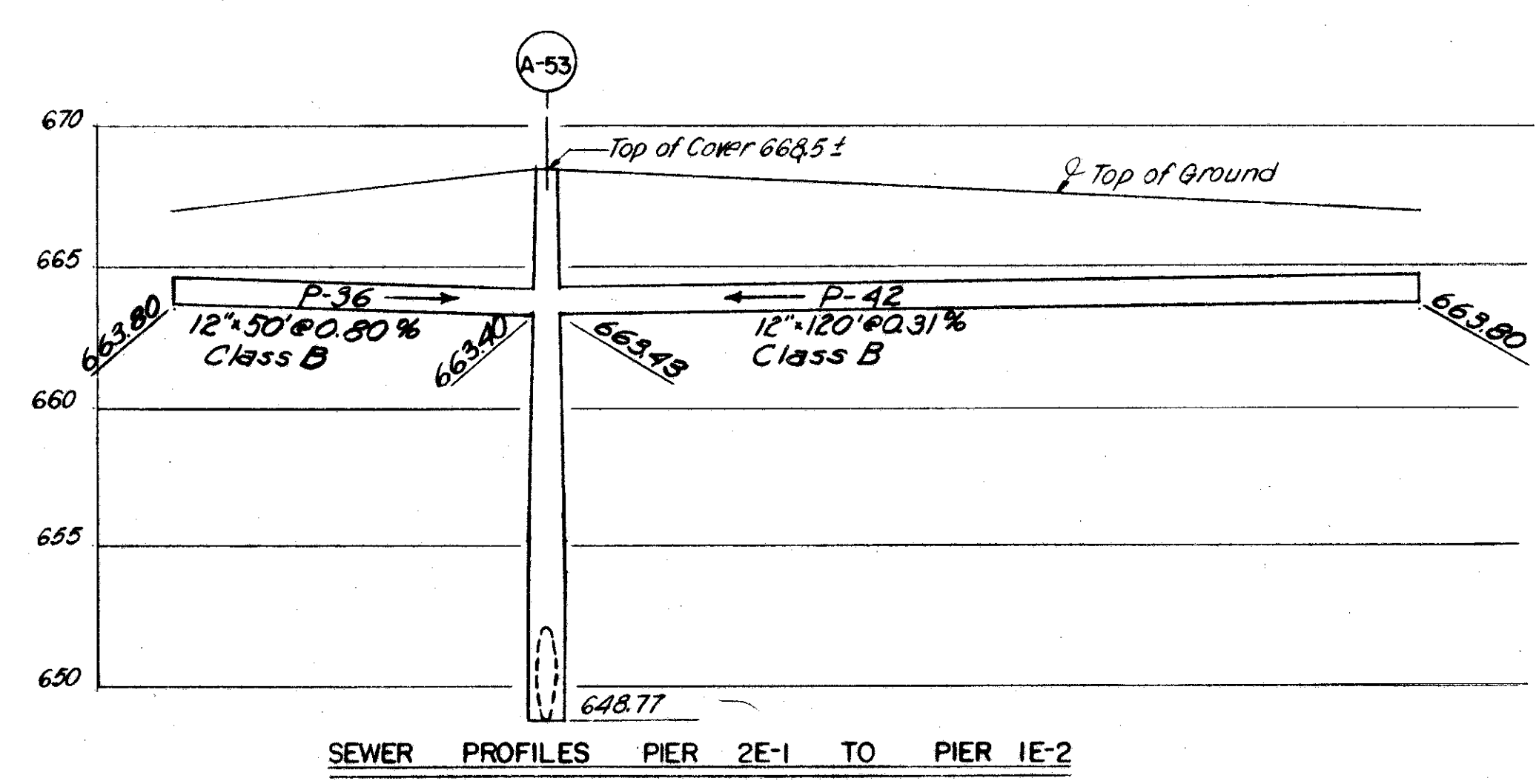
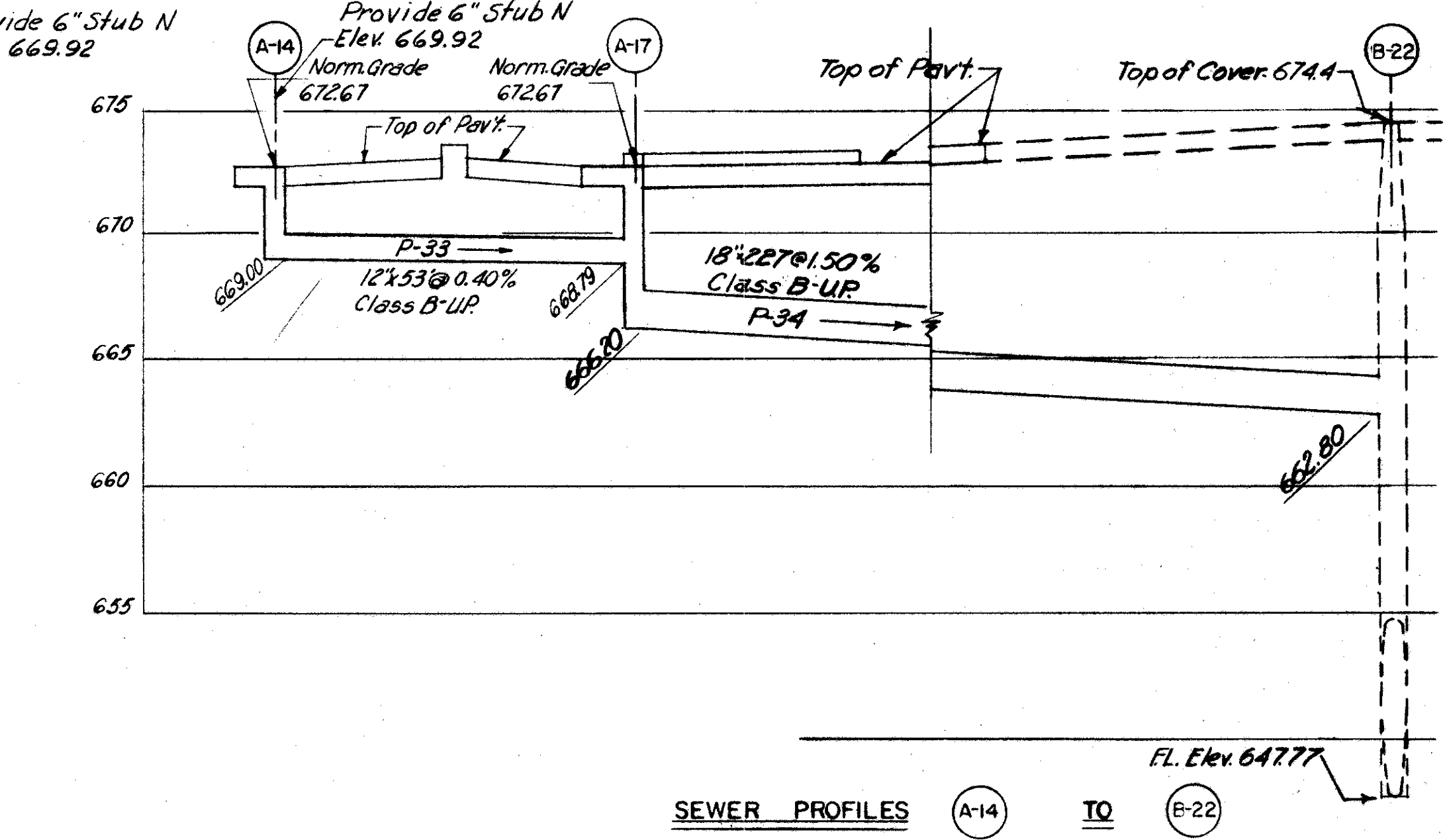
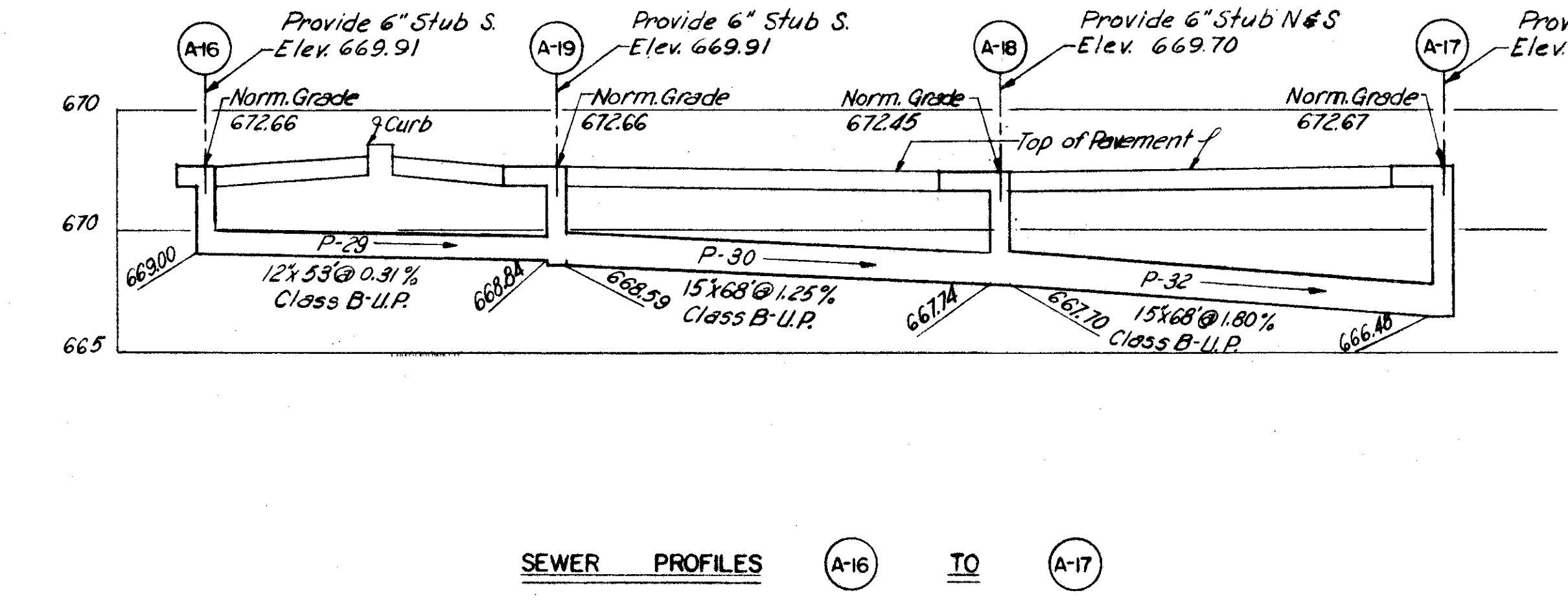
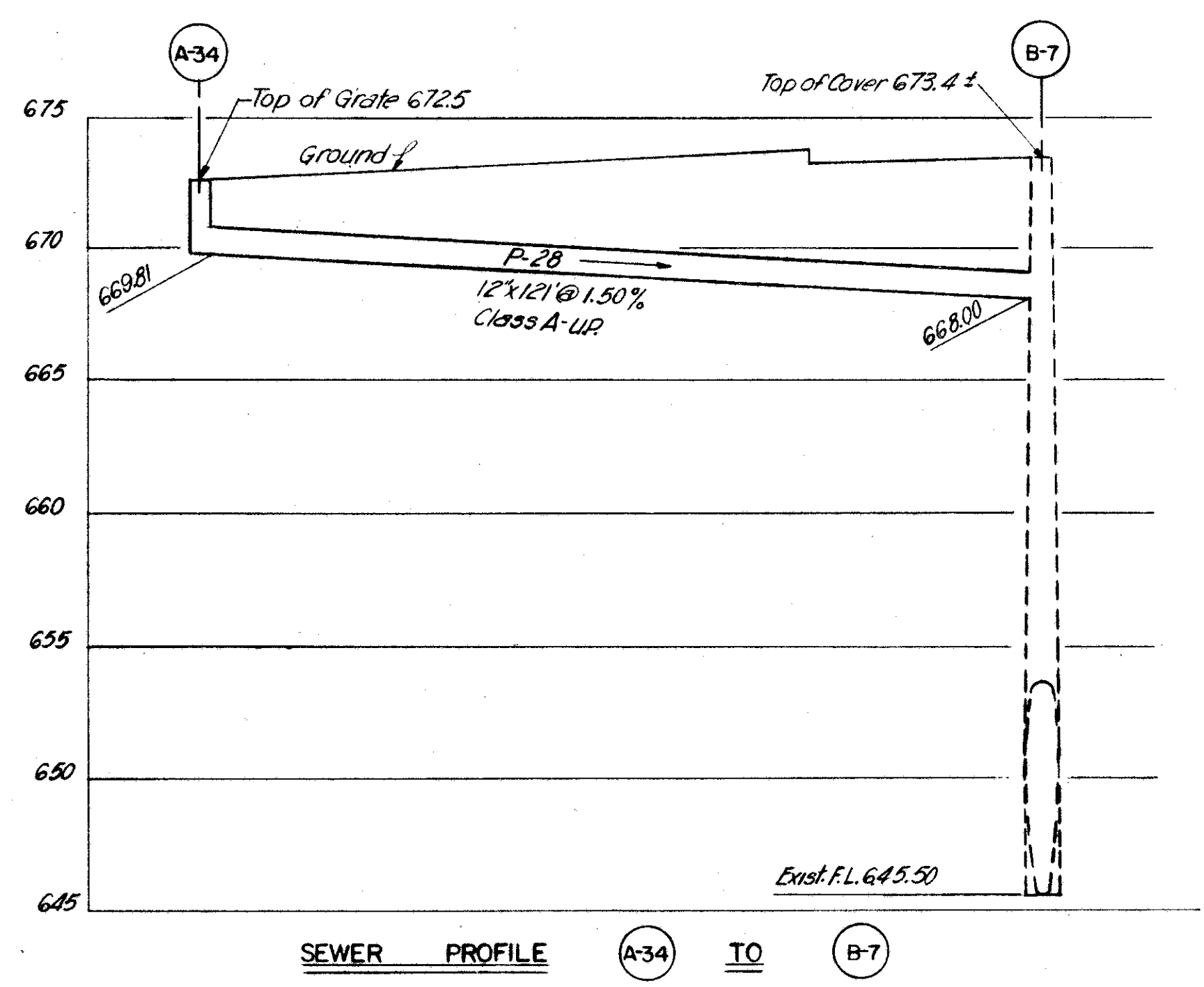
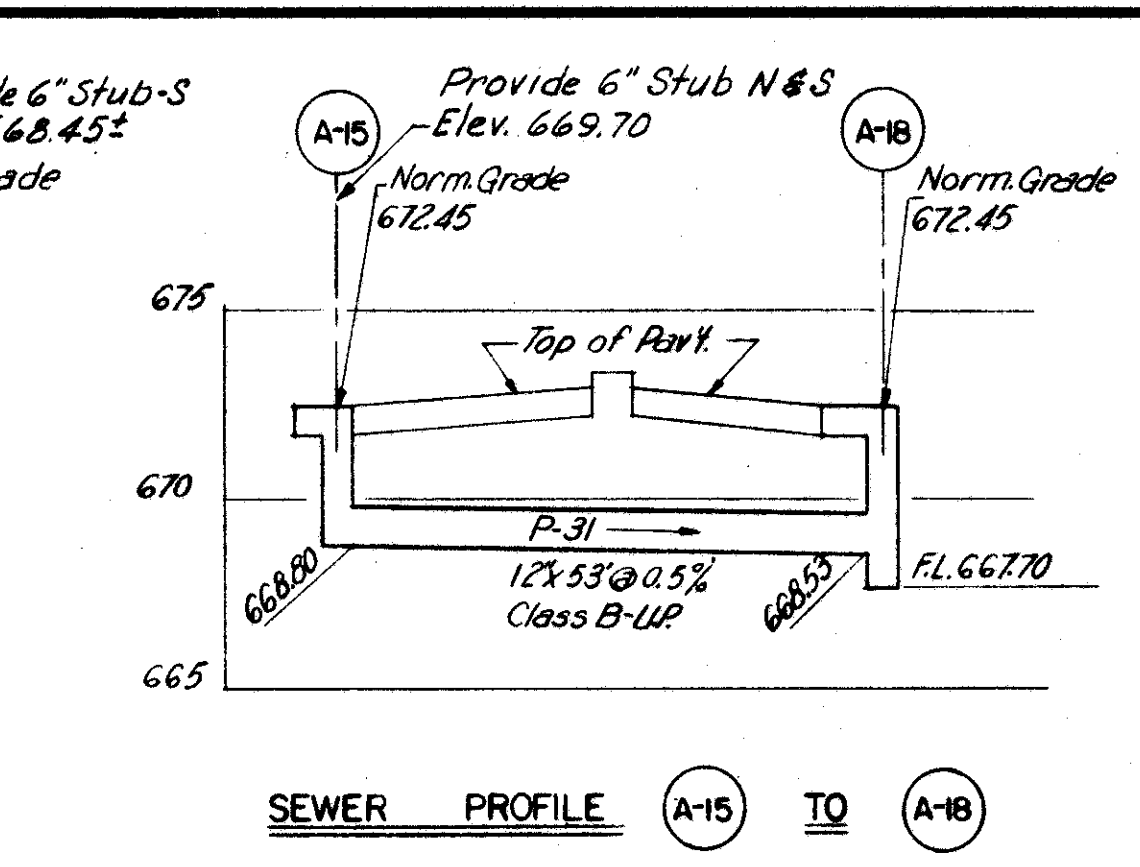
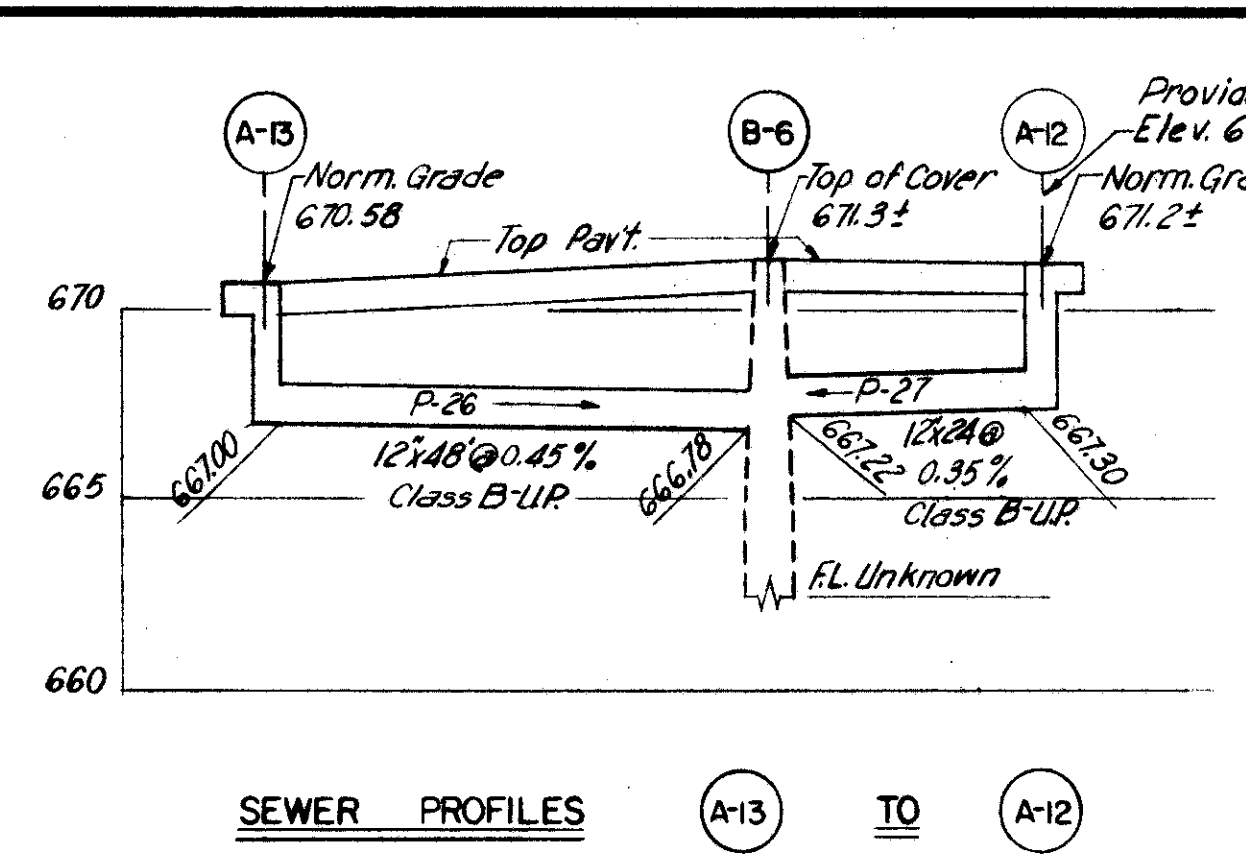
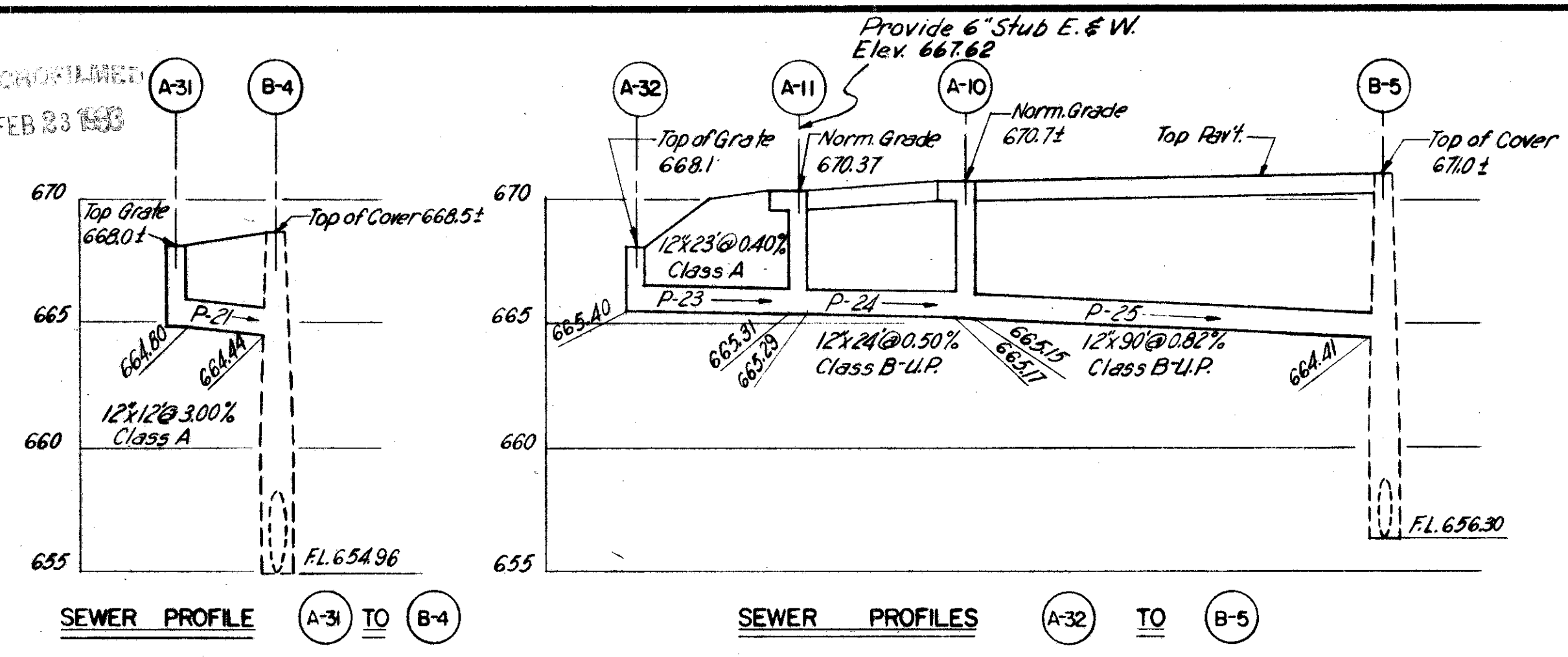


REVISIONS
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	22
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
DRAINAGE PROFILES

INDEX	
P-21	
P-23 thru P-38	
P-41	
P-42	

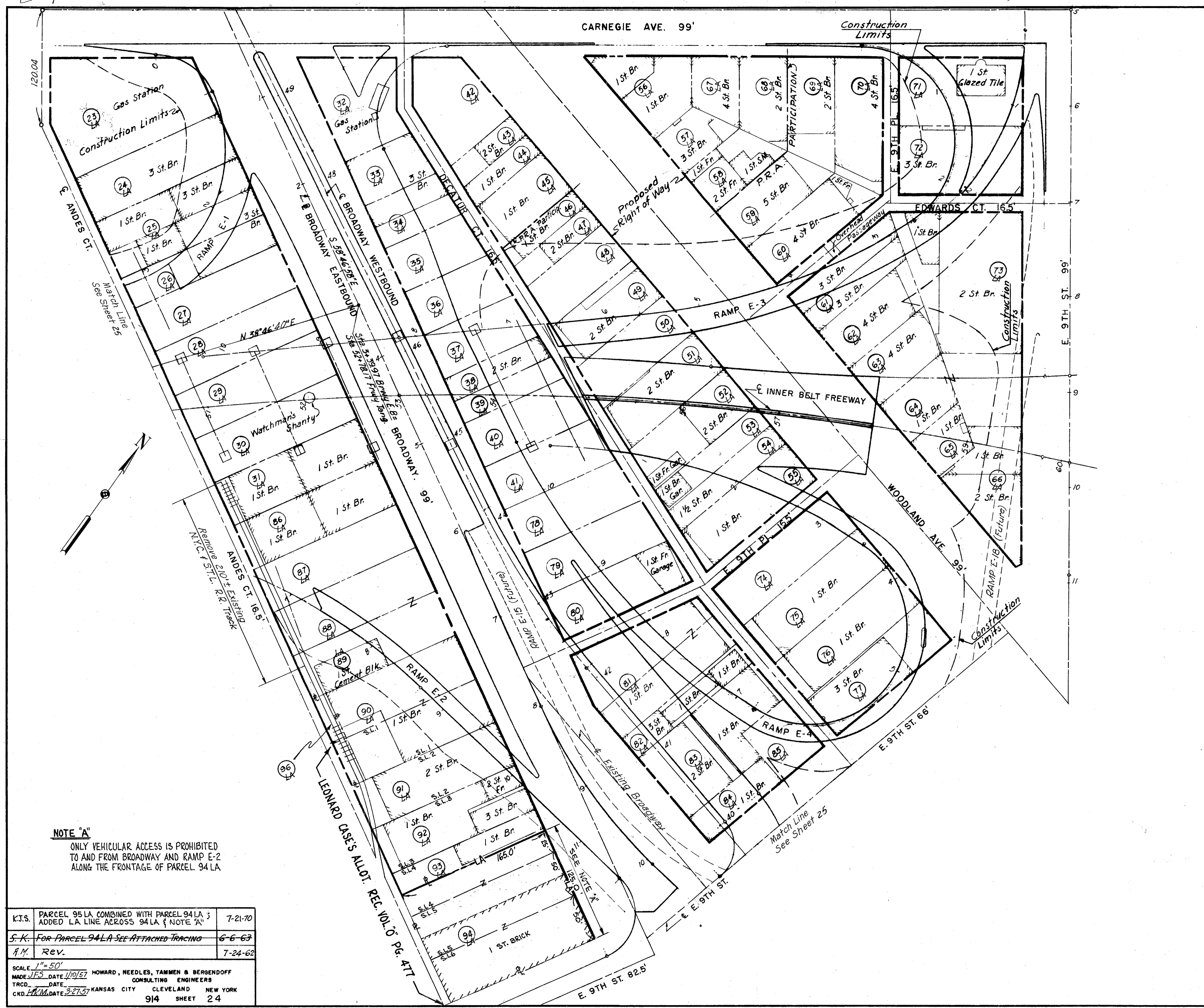


EE-9

CUY-90-15.38
15.97

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	24
2	OHIO	1-1057		117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY-PART 5
APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
RIGHT OF WAY



PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
23LA	Willis J. Zanzerle	15,683.1
24LA	N.Y.C. & St. L. R.R.	8,250.0
25LA	Rose Kowitz et al	10,725.0
26LA	Rose Kowitz et al	5,775.0
27LA	Howard Kowitz	8,250.0
28LA	H.W. Black	8,250.0
29LA	Howard Kowitz	8,250.0
30LA	H.W. Black	8,250.0
31LA	Maxco Company	8,250.0
32LA	Cleveland Trust Co.	8,421.1
33LA	Cleveland Trust Co.	3,905.0
34LA	Cleveland Trust Co.	4,180.0
35LA	Chas. Weinberg & Chas. Sugarman	4,520.8
36LA	Cleveland Trust Co.	4,941.0
37LA	S. Mechalovitz Co.	5,287.0
38LA	S. Mechalovitz Co.	2,773.3
39LA	Meyer Schlam	2,859.4
40LA	Meyer Schlam	5,977.5
41LA	Cleveland Trust Co.	6,323.0
42LA	Cleveland Trust Co.	7,085.5
43LA	Outdoor Investment Co.	2,081.8
44LA	Sam R. Delson	2,168.3
45LA	Cornella Realty Co.	4,786.6
46LA	Cornella Realty Co.	2,142.5
47LA	Cornella Realty Co.	2,607.5
48LA	H.S. & E.E. Allen et al	5,287.0
49LA	Bet Rose Inc.	5,632.8
50LA	Chas. I. & M.J. Cianciolo	5,977.5
51LA	Harry R. & R.N. Wiesenberger	6,323.0
52LA	Chas. I. & M.J. Cianciolo	6,668.8
53LA	Kramer Holding Co.	3,464.1
54LA	Kramer Holding Co.	3,550.5
55LA	Mamie Corso	7,360.5
56LA	Frank & Anthony Dindia	5,757.2
57LA	Bramson Construction Co.	3,170.8
58LA	Harry Perchan	4,335.2
59LA	The Ascot Co.	5,500.3
60LA	Woodland-Ninth Realty Co.	6,665.0
61LA	Woodland-Ninth Realty Co.	6,581.2
62LA	Plumwood Corp.	5,668.7
63LA	E. & Ann Venizelos	4,756.2
64LA	Hill Floral Products Co.	9,267.0
65LA	Hill Floral Products Co.	2,755.1
66LA	Ruth R. Hinman et al	8,155.5
67LA	Ira W. Crouse	3,170.8
68LA	"	4,335.2
69LA	Abe Dubick	5,500.3
70LA	Frank W. Tarbox, A. A. Hilkert & L. Botzum	6,665.0
71LA	Cleveland Trust Co.	9,524.8
72LA	Goodwill Industries	9,505.4
73LA	Cleveland Trust Co. Tr.	17,006.2
74LA	Herwood Realty Inc.	7,961.3
75LA	Zelda Katovsky	7,961.3
76LA	Chas. I. & M.J. Cianciolo	7,961.3
77LA	Family Inc.	7,961.3
78LA	Cleveland Trust Co.	6,668.8
79LA	Kramer Holding Co.	7,014.5
80LA	Mamie Corso	7,360.5
81LA	The Broadway Ninth Co.	12,828.0
82LA	Jean Kerick	4,075.5
83LA	Michalina Demma	11,137.5
84LA	Stephen G. Grech	3,500.0
85LA	Erie Realty & Investment Co.	3,745.5
86LA	Wm. J. Bialosky et al	8,250.0
87LA	Rose Sugarman	8,250.0
88LA	Rose Sugarman	8,250.0
89LA	Rose Sugarman	8,250.0
90LA	Chas. & Rose Sugarman	14,900.0
91LA	Rose Kowitz	8,250.0
92LA	Rose Sugarman	8,172.5
93LA	Ed Klein & N. Weiner	4,125.0
94LA	Sam Braman	LA ONLY (SEE NOTE 'A')
95LA	Sam Braman	COMBINED WITH PAR. 94LA
96LA	N.Y.C. & St. L. R.R.	1,600.0

NOTE 'A'
ONLY VEHICULAR ACCESS IS PROHIBITED
TO AND FROM BROADWAY AND RAMP E-2
ALONG THE FRONTAGE OF PARCEL 94LA

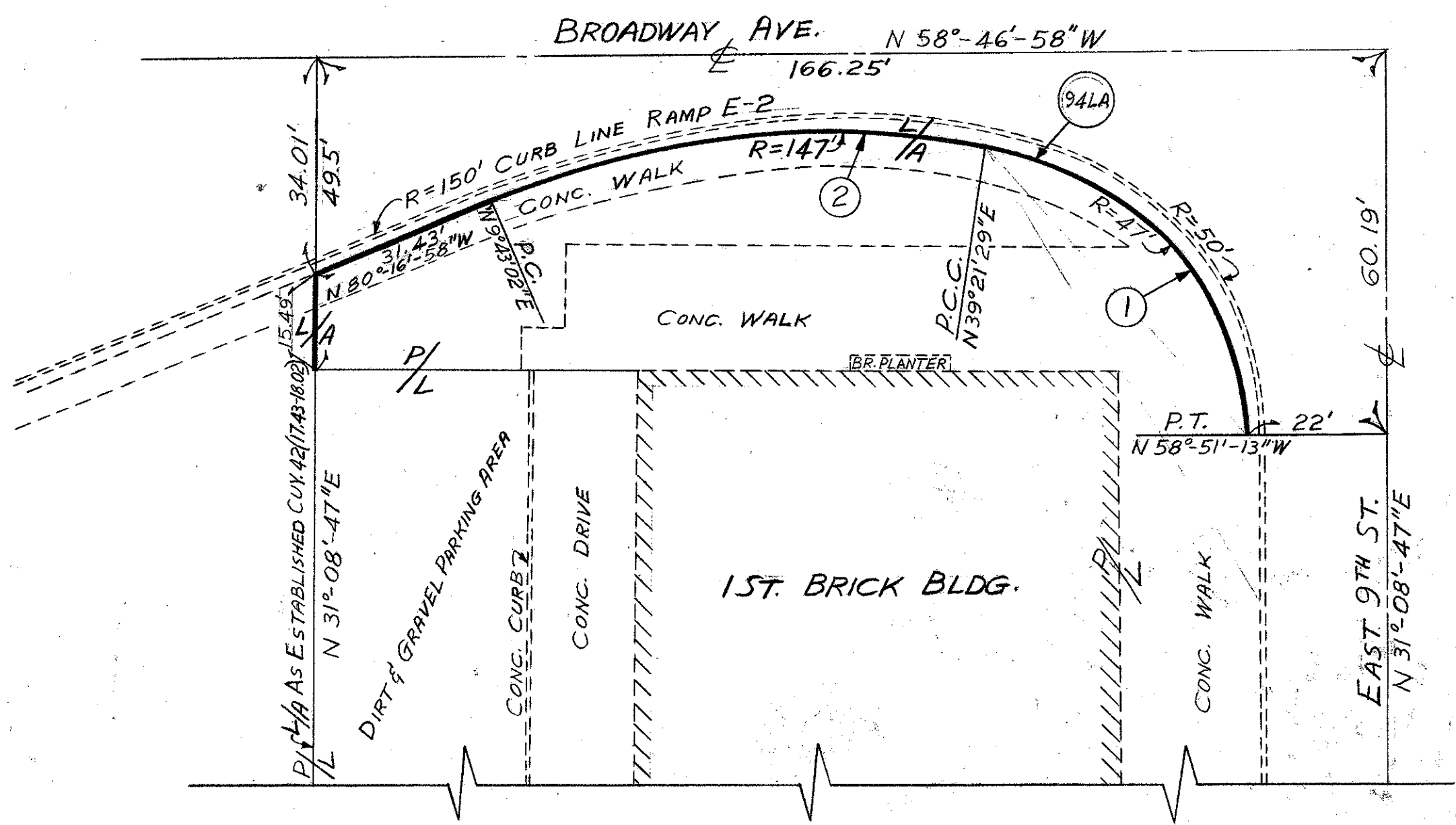
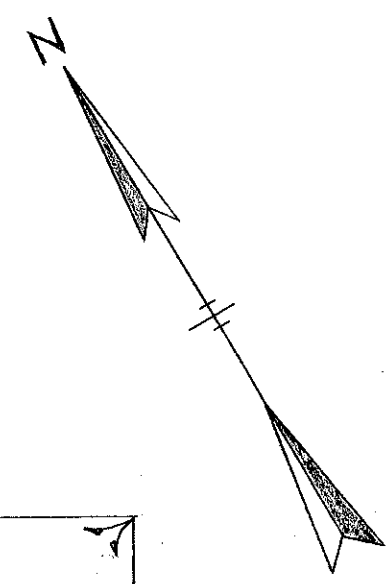
K.T.S.	PARCEL 95LA COMBINED WITH PARCEL 94LA & ADDED L.A. LINE ACROSS 94LA & NOTE 'A'	7-21-70
S.K.	FOR PARCEL 94LA SEE ATTACHED TRACING	6-6-63
A.M.	Rev.	7-24-62

SCALE 1"=50'
MADE J.E.S. DATE 1/10/67 HOWARD, NEEDLES, TAMMEN & BERENDOFF CONSULTING ENGINEERS
TRCD. DATE 3-27-65 KANSAS CITY CLEVELAND NEW YORK
CKD. DATE 3-27-65 914 SHEET 24

FED. ROAD DIVISION	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	I-1057(S)	

24-A
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
RIGHT OF WAY



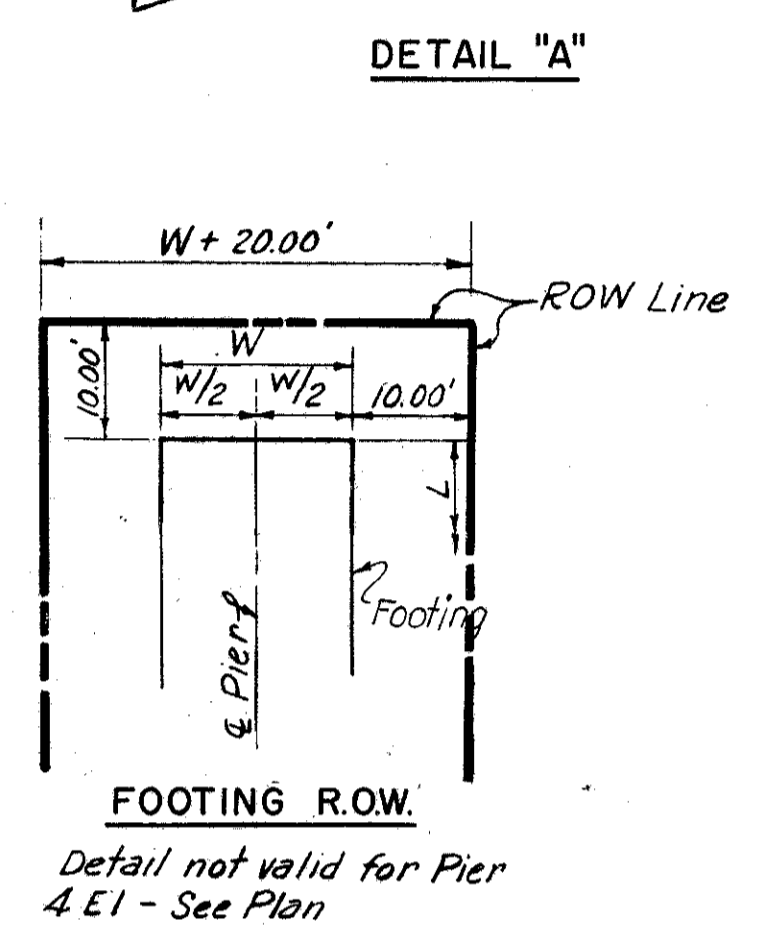
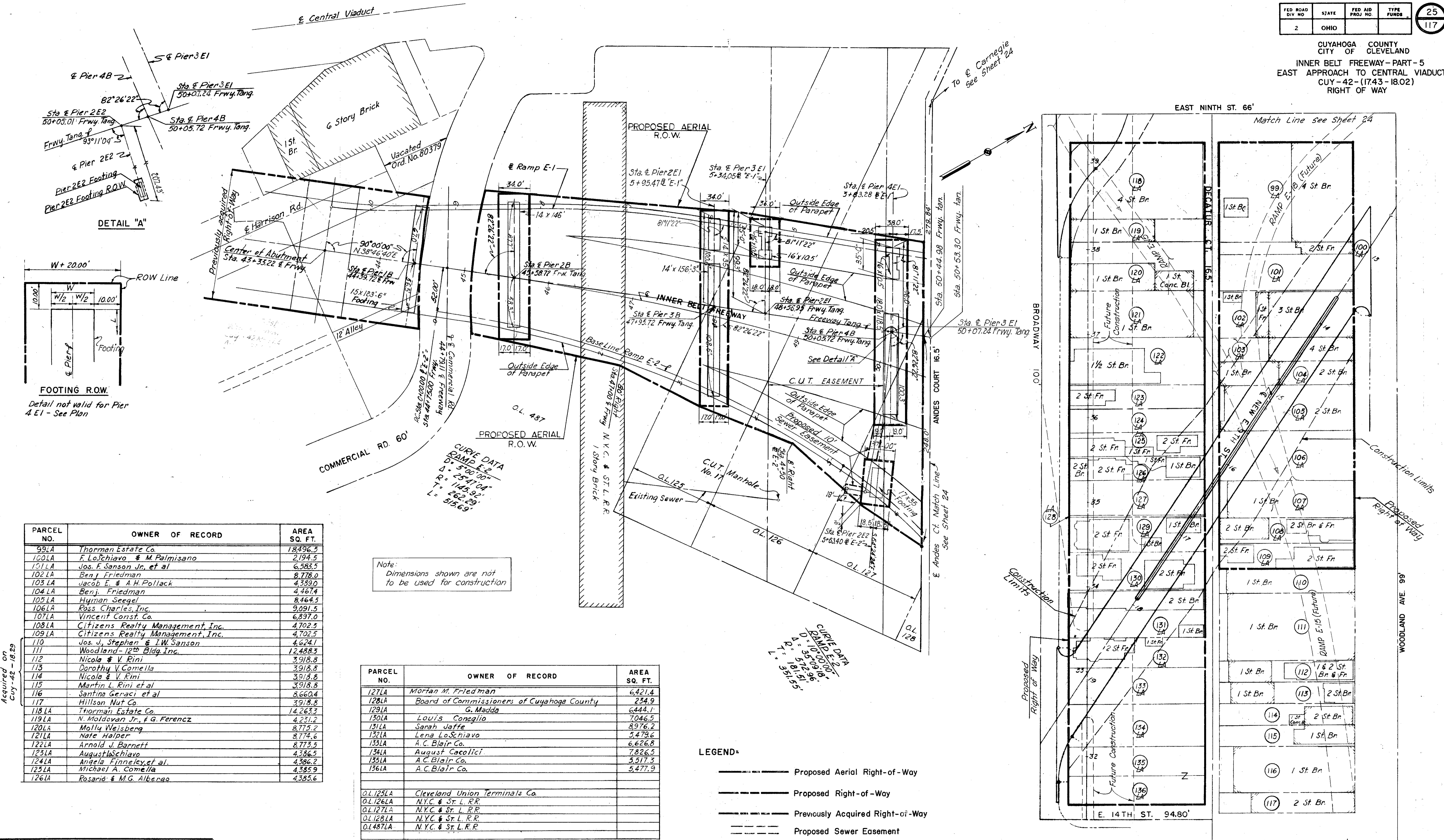
LIMITED ACCESS CURVE DATA	
①	②
$\Delta = 81^{\circ}47'18''$	$\Delta = 29^{\circ}38'27''$
$R = 47.00'$	$R = 147.00'$
$T = 40.70'$	$T = 38.89'$
$Ch = 61.58'$	$Ch = 75.21'$
$A = 67.09'$	$A = 76.05'$
Ch. Bearing = N 9°-44'-52" W	Ch. Bearing = N 65°-27'-44" W

PARCEL 94 LA

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
PLAT OF
LIMITED ACCESS RIGHT OF WAY
FOR PROPERTY OWNED BY
SAM BRAMAN
CITY OF CLEVELAND
CUYAHOGA COUNTY

SCALE: 1"=20'
JUNE 6, 1963

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART - 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(1743-18.02)
RIGHT OF WAY



FOOTING R.O.W.
Detail not valid for Pier 4 E1 - See Plan

CURVE DATA
RAMP E-2
D = 500.00'
Δ = 25.4104°
R = 1445.96'
L = 262.29'
T = 515.69'

CURVE DATA
RAMP E-2
D = 500.00'
Δ = 25.4104°
R = 1445.96'
L = 262.29'
T = 515.69'

PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
99LA	Thorman Estate Co.	18,496.5
100LA	F. LoSchiavo & M. Palmisano	2,194.5
101LA	Jos. F. Sanson Jr., et al	6,583.5
102LA	Benj. Friedman	8,778.0
103LA	Jacob E. & A.H. Pollack	4,389.0
104LA	Benj. Friedman	4,467.4
105LA	Hyman Seegel	8,464.5
106LA	Ross Charles, Inc.	9,091.5
107LA	Vincent Const. Co.	6,897.0
108LA	Citizens Realty Management, Inc.	4,702.5
109LA	Citizens Realty Management, Inc.	4,702.5
110	Jos. J. Stephen & I.W. Sanson	4,624.1
111	Woodland-12th Bldg. Inc.	12,488.3
112	Nicola & V. Rini	3,918.8
113	Dorothy V. Comella	3,918.8
114	Nicola & V. Rini	3,918.8
115	Martin L. Rini et al	3,918.8
116	Santina Geraci et al	8,660.4
117	Hillson Nut Co.	3,918.8
118LA	Thorman Estate Co.	14,263.3
119LA	N. Moldovan Jr., & G. Ferencz	4,231.2
120LA	Molly Weisberg	8,775.2
121LA	Nate Halper	8,774.6
122LA	Arnold J. Barnett	8,773.5
123LA	August LoSchiavo	4,386.2
124LA	Angela Finneley, et al.	4,386.2
125LA	Michael A. Comella	4,385.9
126LA	Rosario & M.G. Albergo	4,385.6

PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
127LA	Mortan M. Friedman	6,421.4
128LA	Board of Commissioners of Cuyahoga County	234.9
129LA	G. Madda	6,444.1
130LA	Louis Coneglio	7,046.5
131LA	Sarah Jaffe	8,976.2
132LA	Lena LoSchiavo	5,479.6
133LA	A.C. Blair Co.	6,626.8
134LA	August Cacolici	7,826.5
135LA	A.C. Blair Co.	5,517.3
136LA	A.C. Blair Co.	5,477.9
O.L.125LA	Cleveland Union Terminals Co.	
O.L.126LA	N.Y.C. & St. L. R.R.	
O.L.127LA	N.Y.C. & St. L. R.R.	
O.L.128LA	N.Y.C. & St. L. R.R.	
O.L.487LA	N.Y.C. & St. L. R.R.	

- LEGEND-
- Proposed Aerial Right-of-Way
 - Proposed Right-of-Way
 - - - - - Previously Acquired Right-of-Way
 - - - - - Proposed Sewer Easement

Acquired on
Cuy-42-18.29

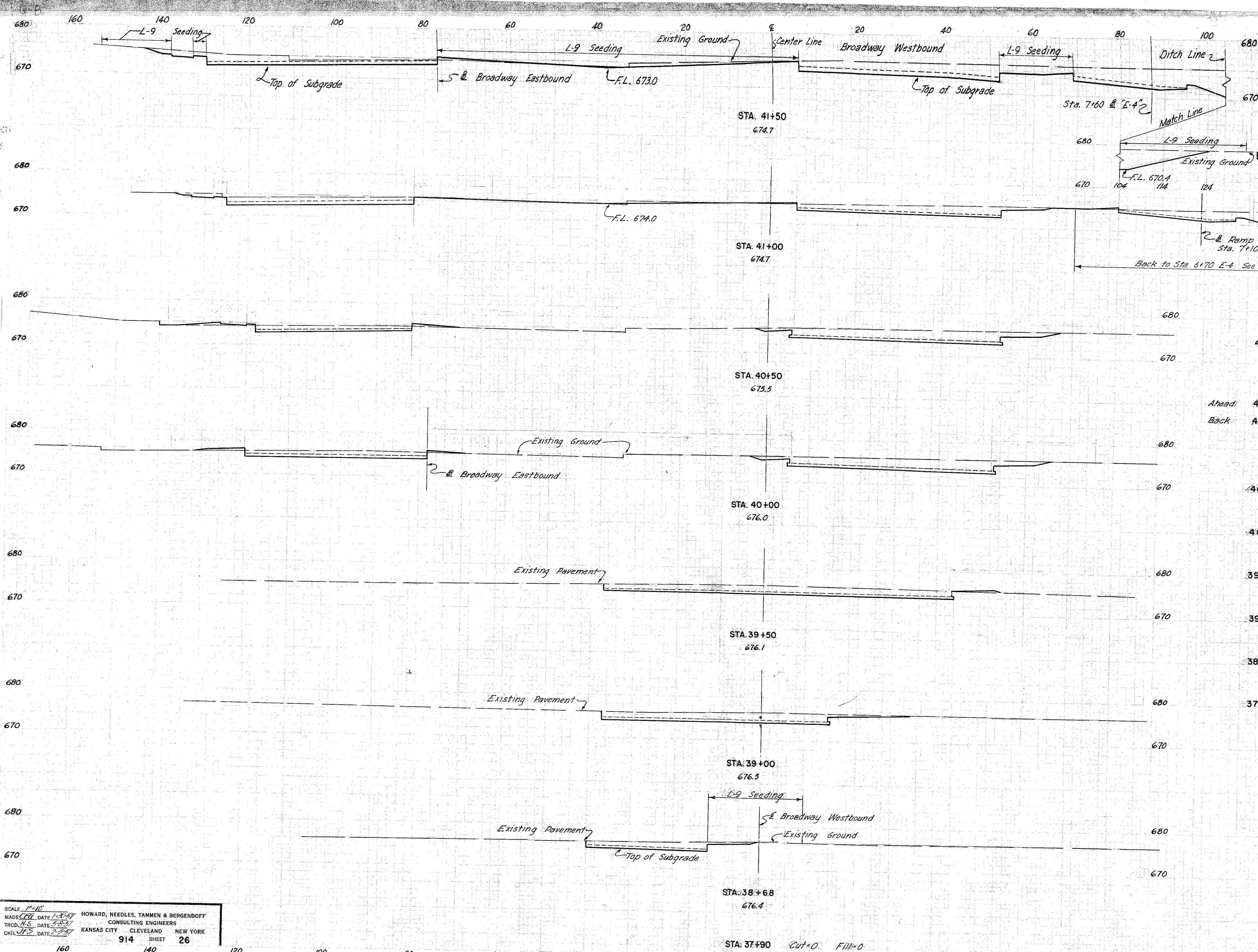
8-0

CUY-90-15.38-15.97

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

26
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(1743-18.02)
CROSS SECTIONS 680



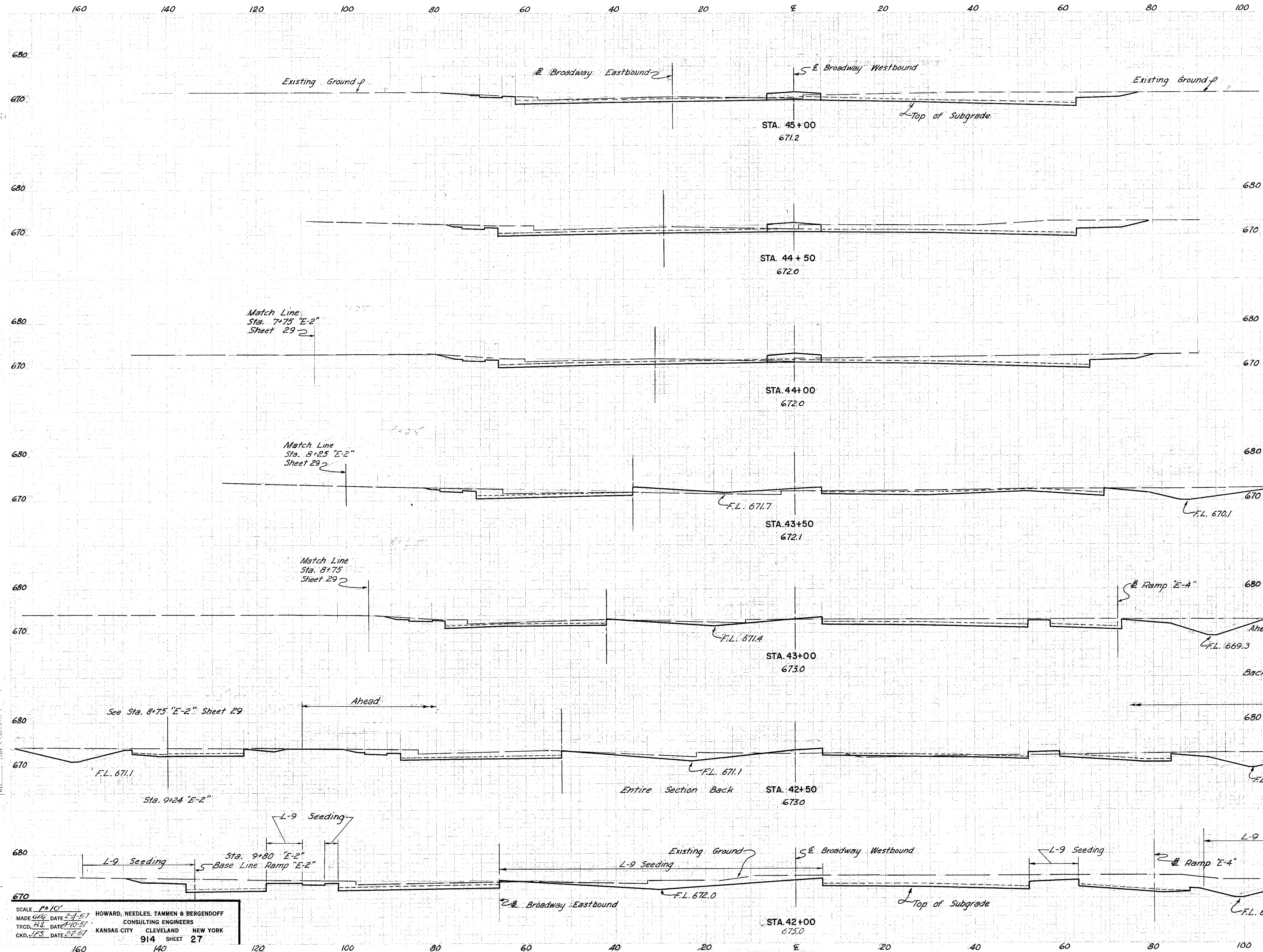
STATION	SEEDING		SUBBASE		EARTHWORK	
	WIDTH L.F.	AREA SQ.YD.	AREA S.F.	VOL. C.Y.	END EXC.	EMB. VOLUME
41+50	156		61		403	6
		897		110		608
Ahead 41+00	167		58		254	5
Back 41+00	122		45		140	4
		711		81		280
40+50	134		42		163	14
		736		79		300
40+00	131		43		161	11
		425		78		285
39+50	22		41		147	2
		125		62		244
39+00	23		26		117	0
		80		23		101
38+68	22		13		53	0
		192		19		58
37+90	22		0		0	0

FEB 23 1963

ORIGINAL SURVEY PLOT
NOTE: EXC. & EMB. IN CUBIC YARDS

SCALE 1"=10'
MADE BY DATE 1-27-63 HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
TRCD. DATE 5-8-61 KANSAS CITY CLEVELAND NEW YORK
CHKD. DATE 2-28-61 914 SHEET 26

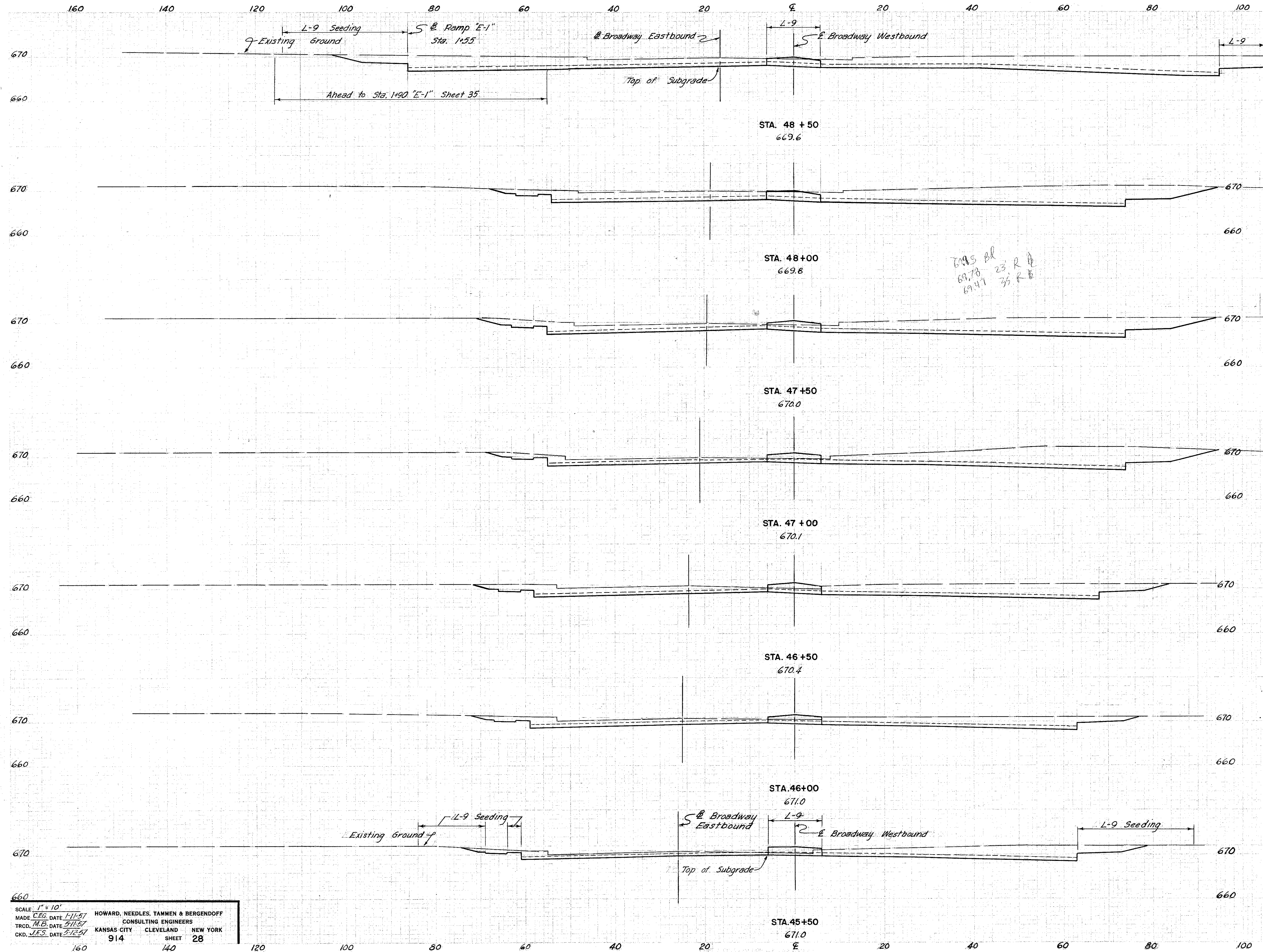
CUYAHOGA COUNTY
 CITY OF CLEVELAND
 INNER BELT FREEWAY—PART 5
 EAST APPROACH TO CENTRAL VIADUCT
 CUY-42-(17.43-18.02)
 CROSS SECTIONS



L.F.	WIDTH	AREA	SUBBASE		EARTHWORK	
			AREA	VOL.	END AREA	VOLUME
	SQYD	S.F.	S.F.	C.Y.	EXC.	EMB.
45+00	52	63	205	6		
	298	118			433	12
44+50	55	65	263	7		
	300	119			436	17
44+01	55	67	218	12		
	434	110			376	35
43+50	98	49	180	25		
	572	91			397	29
43+00	108	50	249	6		
	642	92			410	20
Ahead 42+50	123	50	194	16		
Back 42+50	167	65	274	16		
	883	118			765	18
42+00	151	62	552	3		
	853	114			884	8

SCALE 1"=10'
 MADE 6/27/57 DATE 2-1-57 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 TRCD. H.S. DATE 7-10-57 CONSULTING ENGINEERS
 CKD. J.F.S. DATE 8-2-57 KANSAS CITY CLEVELAND NEW YORK
 914 SHEET 27

CUYAHOGA COUNTY
CITY OF CLEVELAND
660 INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



L.F.	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END	AREA	VOLUME	
	SQ. YD.	S.F.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Ahead 48+50	36		91		549	0		
Back 48+50	70		76		430	0		
48+00	62	367	65	130	434	0	800	0
48+00	62	347	65	120			765	2
47+50	63		65		392	2		
47+00	62	347	65	120			735	5
47+00	62		65		402	3		
47+00	62	330	65	119			656	7
46+50	57		64		306	5		
46+50	57	311	62	116			527	8
46+00	55		62		263	4		
46+00	55	294	63	115			495	10
45+50	51		63		272	7		
45+50	51	286	63	116			442	12

69.5 BL
69.78 23 R
69.47 35 R

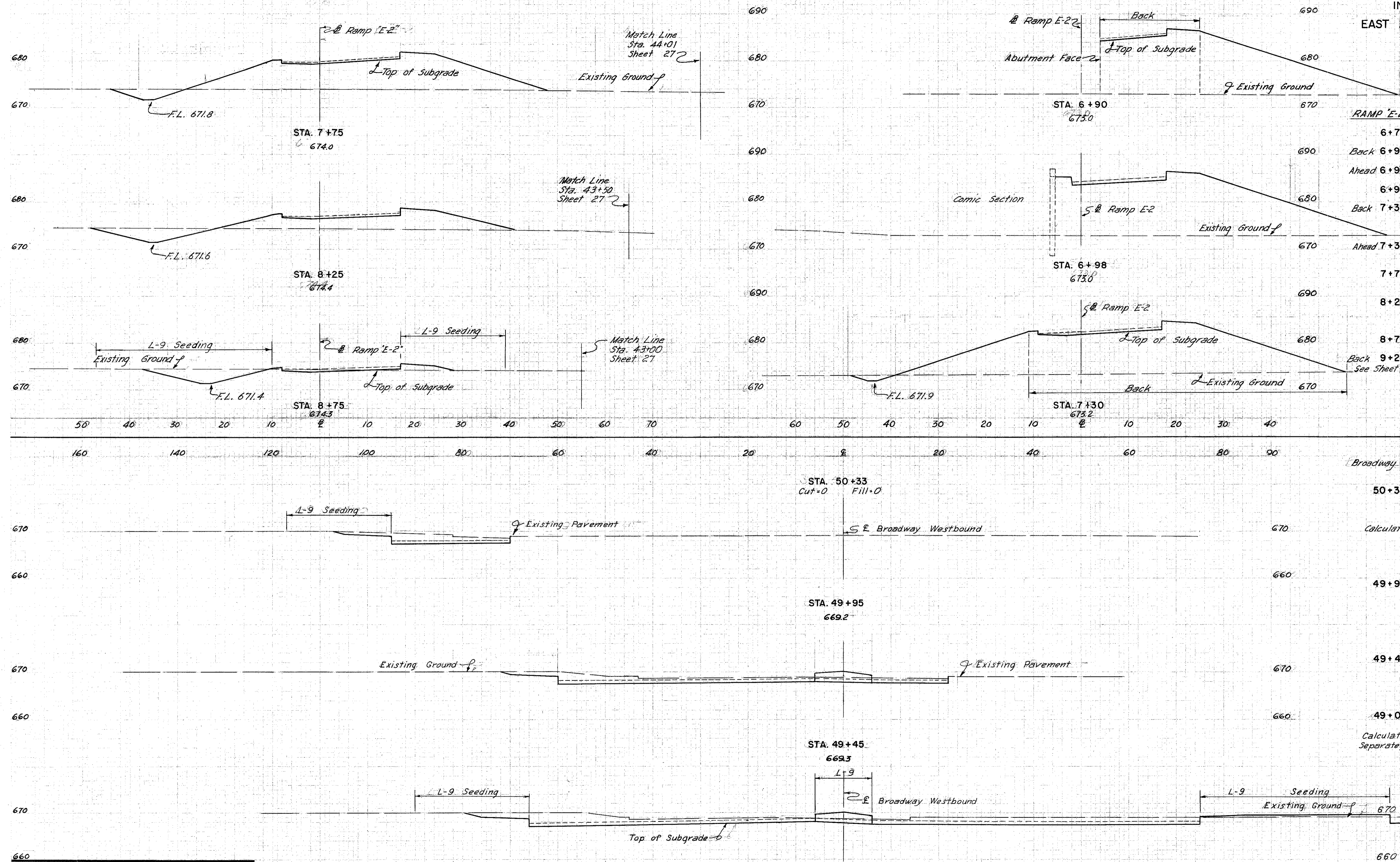
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MADE: C.E.G. DATE 1/11/57
TRCD: M.B. DATE 5/11/57
CKD: J.F.S. DATE 5/12/57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 28

REVISIONS
FEB 23 1933

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	29 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



STATION	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ. YD.	S.F.	CY.	EXC.	EMB.	EXC.	EMB.
6+72					Calculated Separately			
Back 6+90		80	7	2	0	266	0	203
Ahead 6+90	61	53	7	3	0	552	0	176
Back 7+30	51	196	16	15	0	485	0	737
Ahead 7+30	101	+101 470	12	5	613	18	810	
7+75	87		11	17	359	51	477	
8+25	80	464	11	20	38	156		
8+75	59	386	20	35	15	68	158	
Back 9+24 See Sheet 27	32	248	15	22	80	0	114	14
50+38			0	0	0			
49+95			13	53	0		148	0
49+45	34	157	41	107	0		292	16
49+00	36	200	71	243	19		733	18
		603		150				

SCALE 1"=10'
MADE C.E.G. DATE 1-30-37
TRCD. H.S. DATE 5-16-57
CKD. L.K.M. DATE 5-17-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 29

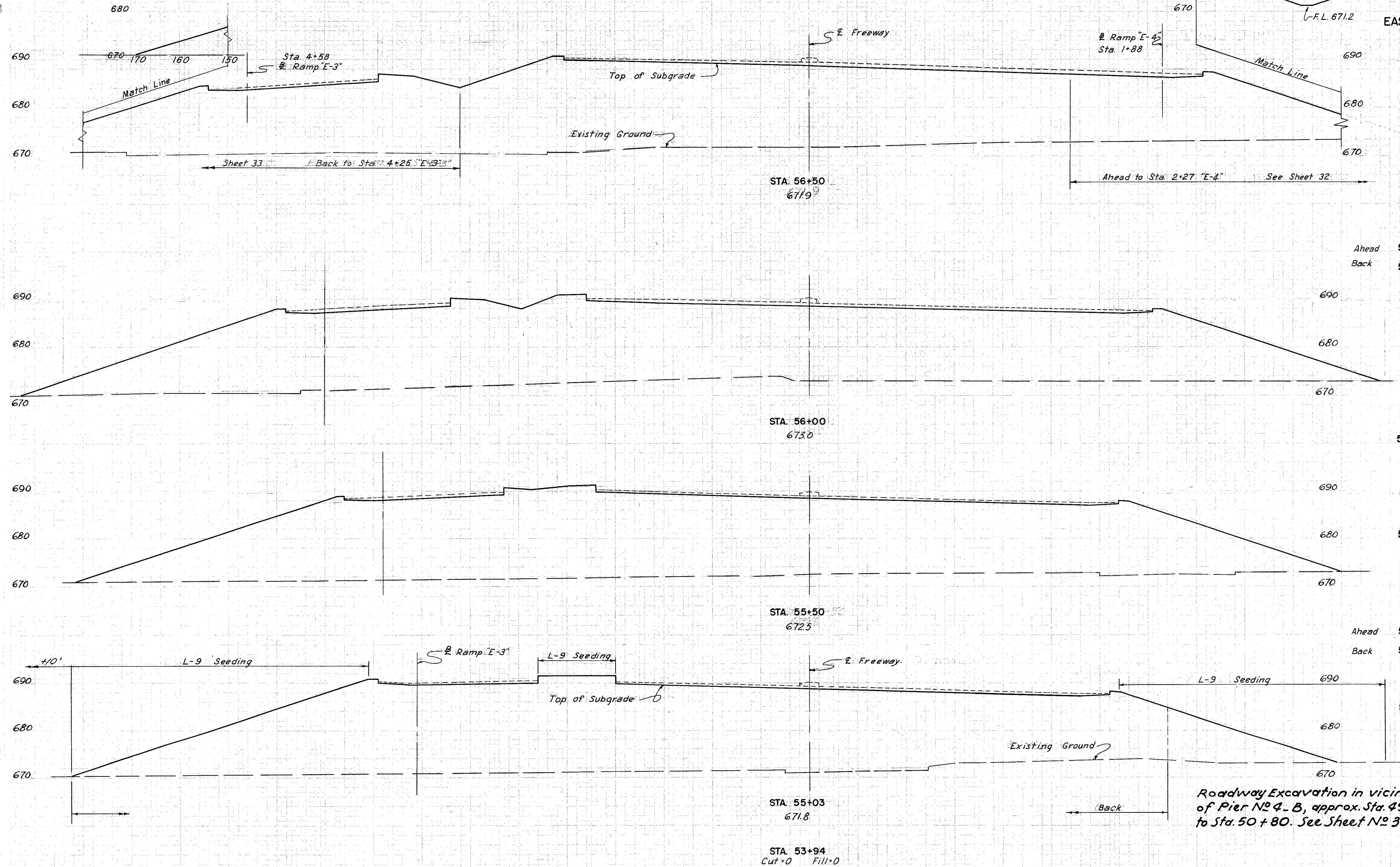
BROADWAY—STA. 49+00 TO STA. 50+38
RAMP E-2—STA. 8+75 TO STA. 7+75

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	30 117
2	OHIO			

FEB 23 1957

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



WIDTH L.F.	AREA SQ. YD.	SUBBASE		EARTHWORK	
		AREA S.F.	VOL. C.Y.	END AREA EXC.	VOLUME EMB.
Ahead	56+50	94	57	0	2117
Back	56+50	177	84	27	3912
		942	146		42 6932
	56+00	162	74	19	3575
		819	131		18 6601
	55+50	133	68	0	3554
		731	117		0 6269
Ahead	55+03	147	66	0	3649
Back	55+03		0		3426
				Calculated Separately	0 8589
	53+94			0	0
					22000

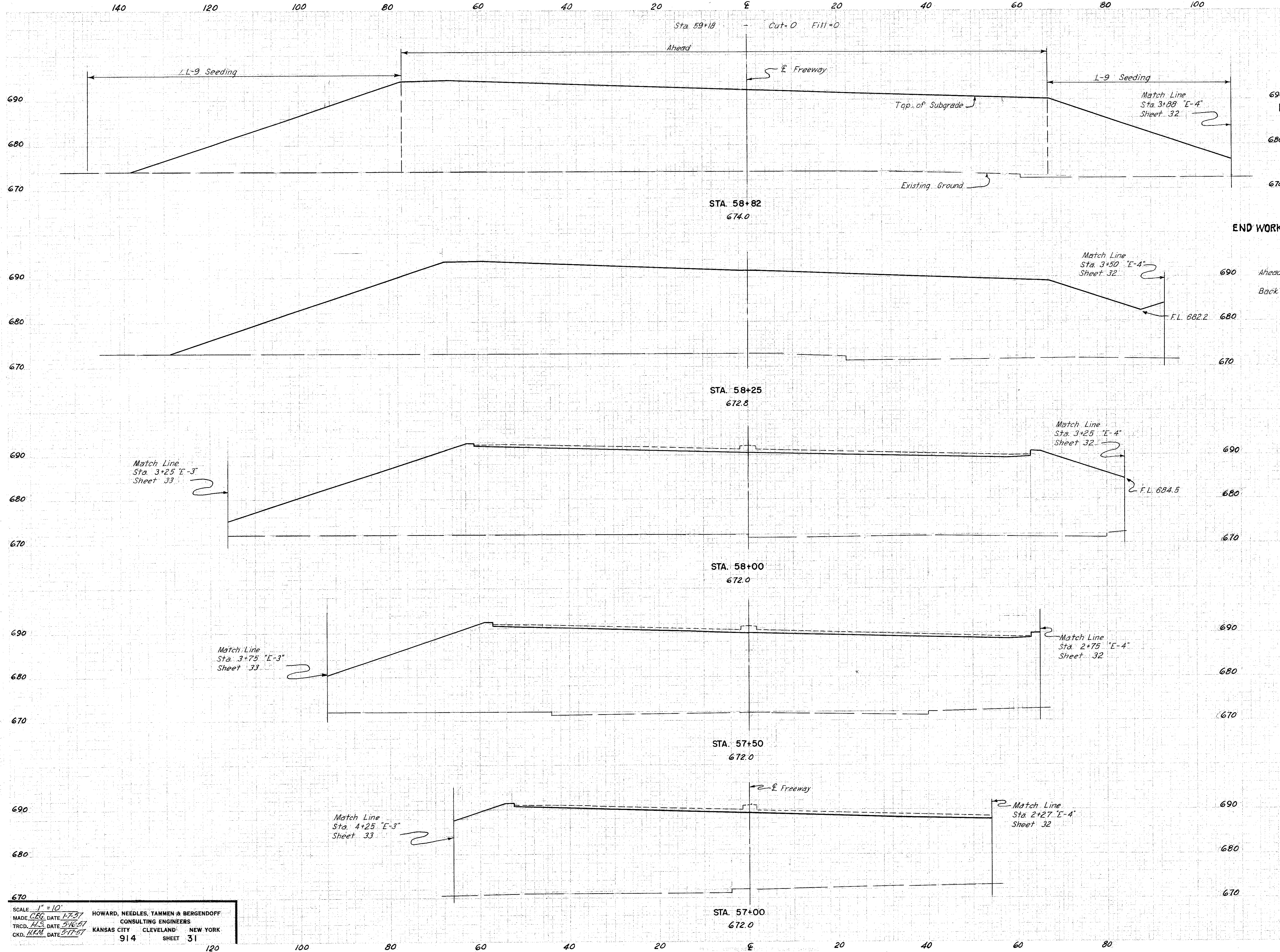
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TRCD. H.S. DATE 5-10-57 KANSAS CITY CLEVELAND NEW YORK
CKD. J.F.S. DATE 1-8-57 914 SHEET 30

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 FREEWAY - STA. 53+94 TO STA. 56+50

REVISED
FEB 23 1933

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

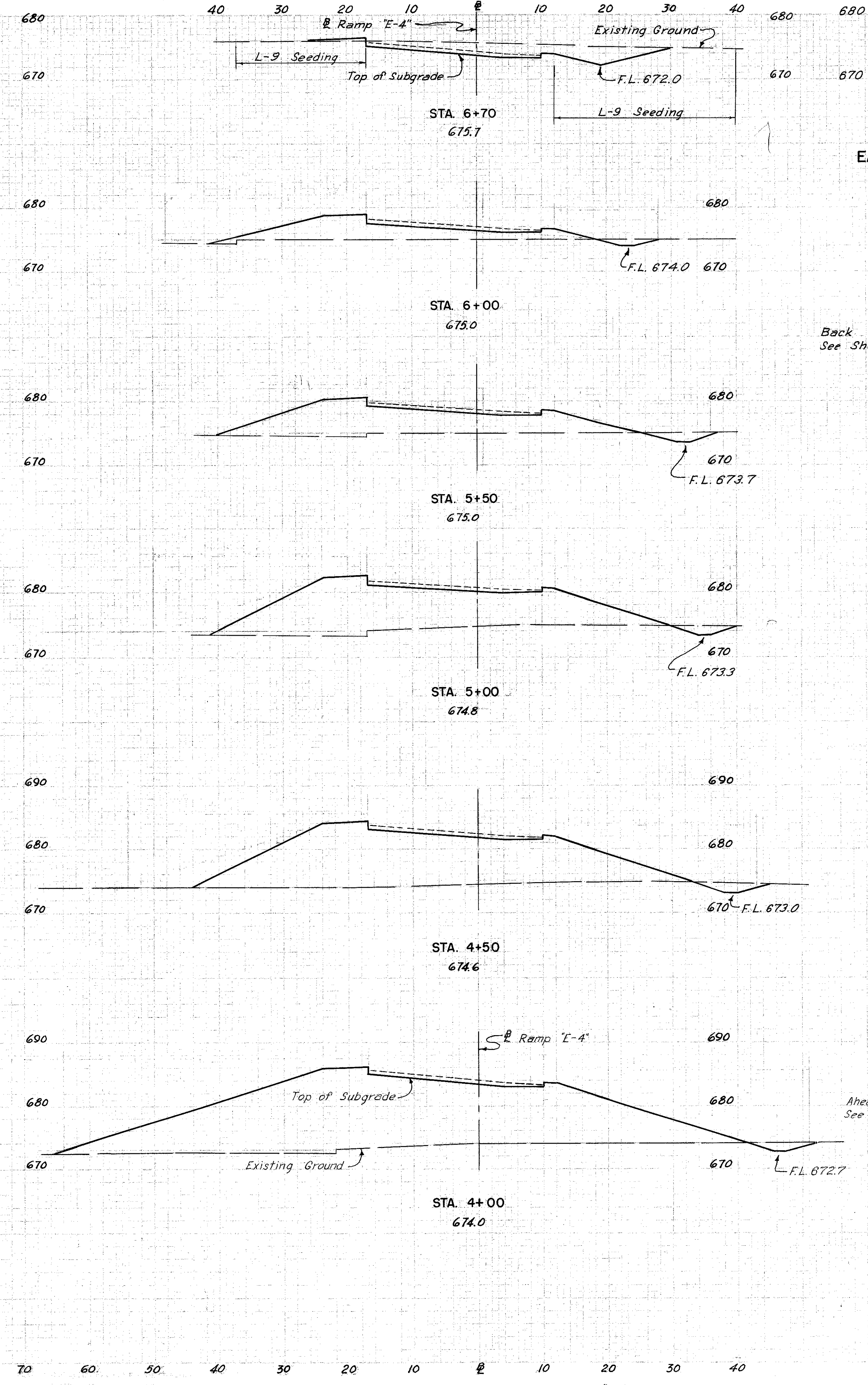
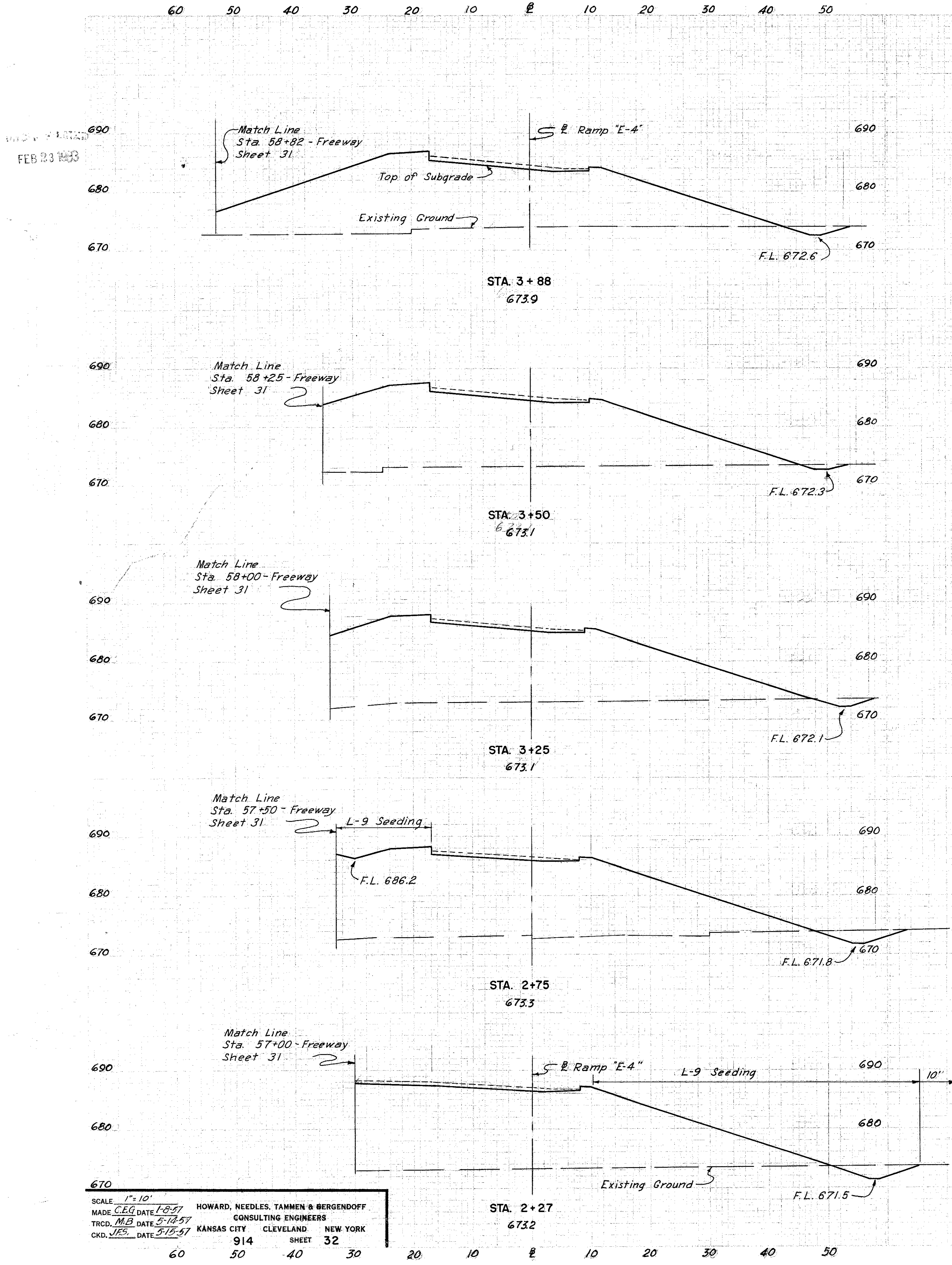
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



STATION	SEEDING WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE		EARTHWORK			
			AREA S.F.	VOL. C.Y.	END AREA		VOLUME	
					EXC.	EMB.	EXC.	EMB.
END WORK 59+18			0	0			0	2513
Ahead 58+82			0	0	2705			
Back 58+82			0	0	3783			
58+25	92		0	0	3589			0 7782
		236						0 3242
58+00	78		54	0	3413			
		356		104				0 5759
57+50	50		58	0	2807			
		178		103				0 4604
57+00	14		53	0	2165			
				102				0 3965

SCALE 1" = 10'
MADE C.E.G. DATE 1-7-37
TRCD. H.S. DATE 3-10-37
CKD. H.R.M. DATE 3-17-37

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 31



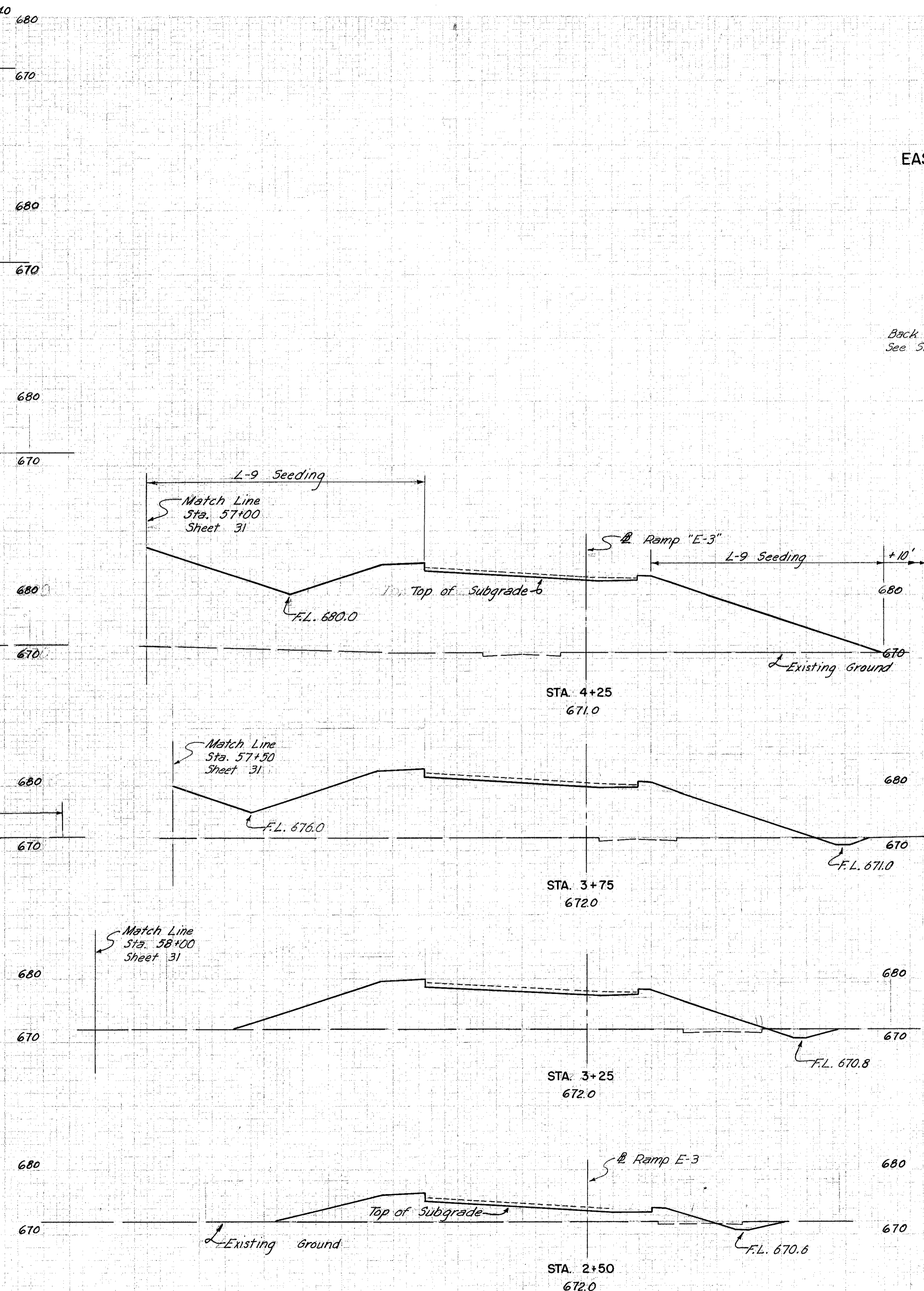
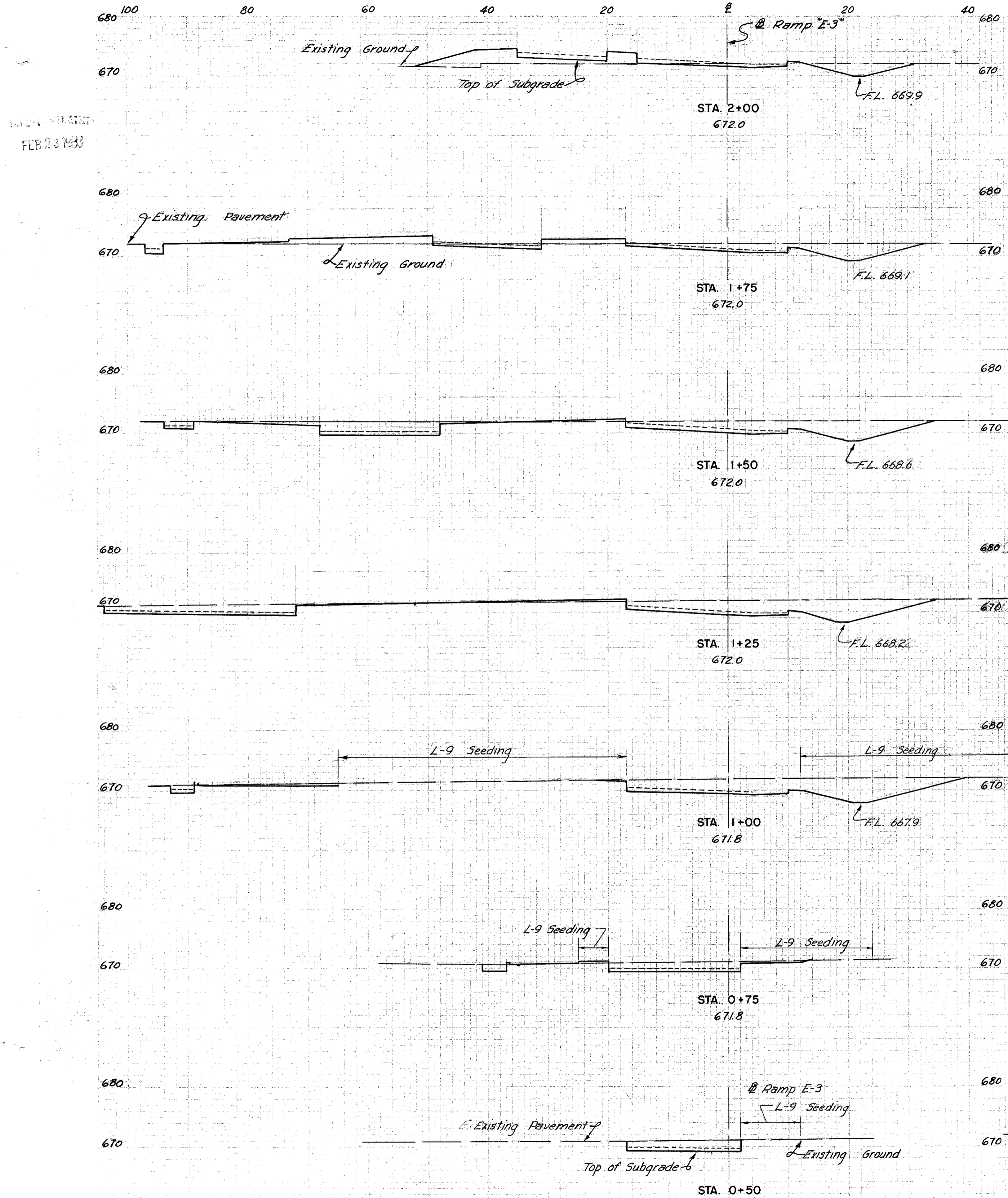
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	32
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS

L.F.	WIDTH	AREA	SUBBASE		EARTHWORK		
			AREA	VOL.	END AREA	VOLUME	
	SQ. YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Back 7+10 See Sheet 26	50	12	114	1			
	218		18		158	5	
6+70	48	12	100	6			
	412		31		137	152	
6+00	58	12	6	111			
	353		22		14	318	
5+50	69	12	9	233			
	400		22		16	554	
5+00	75	12	8	365			
	442		22		17	792	
4+50	84	12	10	491			
	547		22		18	1209	
4+00	113	12	9	815			
	137		5		4	366	
3+88	93	12	9	833			
	350		17		10	1138	
3+50	73	12	5	784			
	205		11		7	743	
3+25	75	11	10	821			
	433		19		29	1569	
2+75	81	10	21	874			
	424		18		38	1523	
2+27	78	10	22	839			
	344		17		35	1100	
Ahead 1+88 See Sheet 30	81	14	27	784			

SCALE 1"=10'
MADE C.E.G. DATE 1-8-57 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. M.B. DATE 5-14-57 CONSULTING ENGINEERS
CKD. J.E.S. DATE 5-15-57 KANSAS CITY CLEVELAND NEW YORK
914 SHEET 32

RAMP "E-4" - STA. 2+27 TO STA. 6+70



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	33 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS

STATION	SEEDING		SUBBASE		EARTHWORK			
	WIDTH L.F.	AREA SQYD.	AREA S.F.	VOL. C.Y.	END AREA EXC.	AREA EMB.	VOLUME EXC.	VOLUME EMB.
Back 4+58 See Sheet 30	70		16		0	1111		
		203		18	0		0	1391
4+25	89		14		0	1165		
		475		26			3	1727
3+75	82		14		3	700		
		442		27			9	1047
3+25	77		15		7	431		
		575		43			21	826
2+50	61		16		8	164		
		319		35			45	201
2+00	54		22		41	53		
		162		20			62	49
1+75	63		22		92	54		
		169		21			121	27
1+50	59		24		169	4		
		197		22			159	6
1+25	83		24		174	10		
		226		18			152	7
1+00	80		14		152	5		
		149		13			94	4
0+75	27		13		46	4		
		51		10			38	2
0+50	10		10		36	0		
		28		8			33	0
0+00	0		0		0	0		

SCALE 1"=40'
MADE 1/20 DATE 2-4-57
TRCD. M.B. DATE 2-14-57
CKD. J.P.S. DATE 2-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

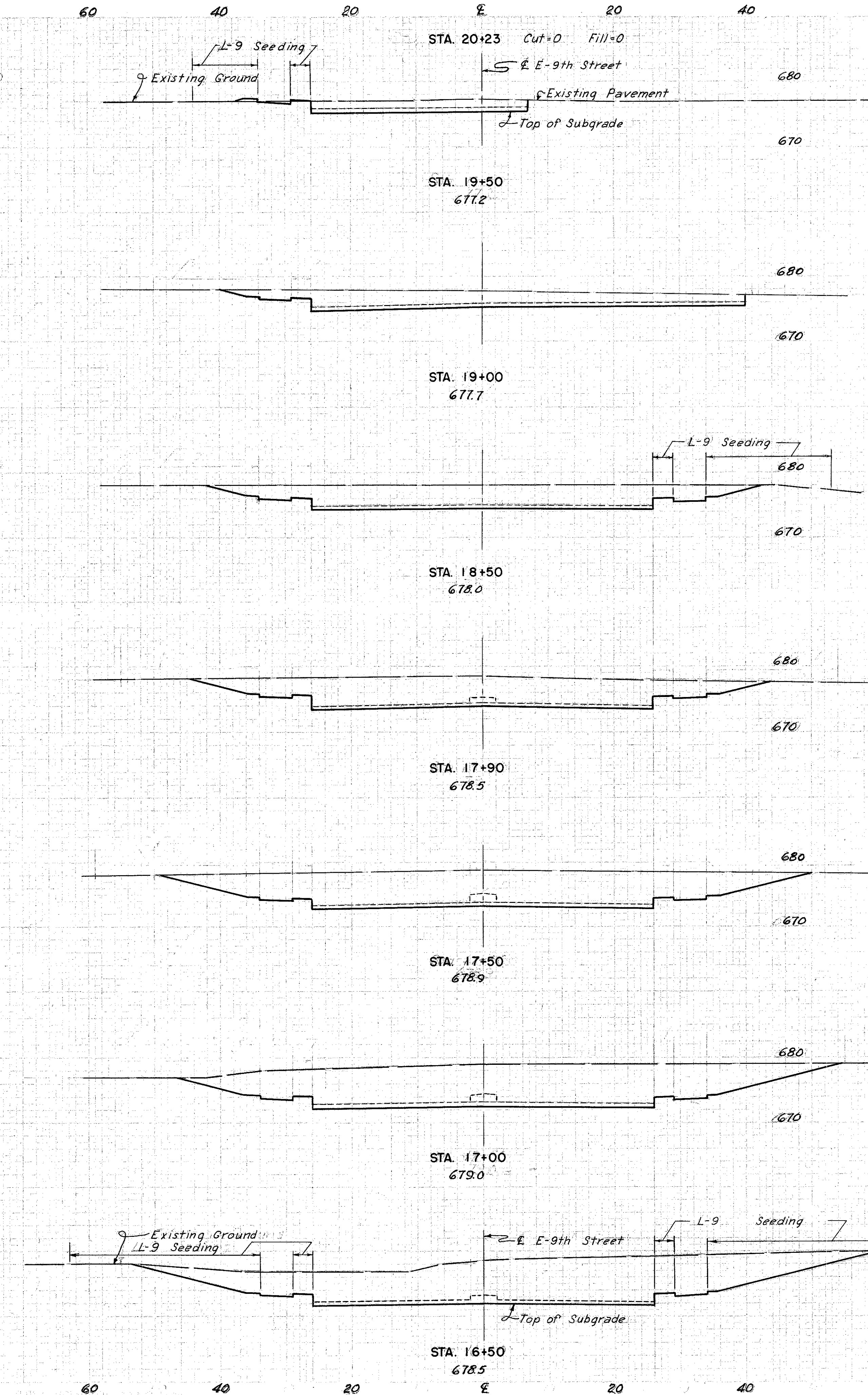
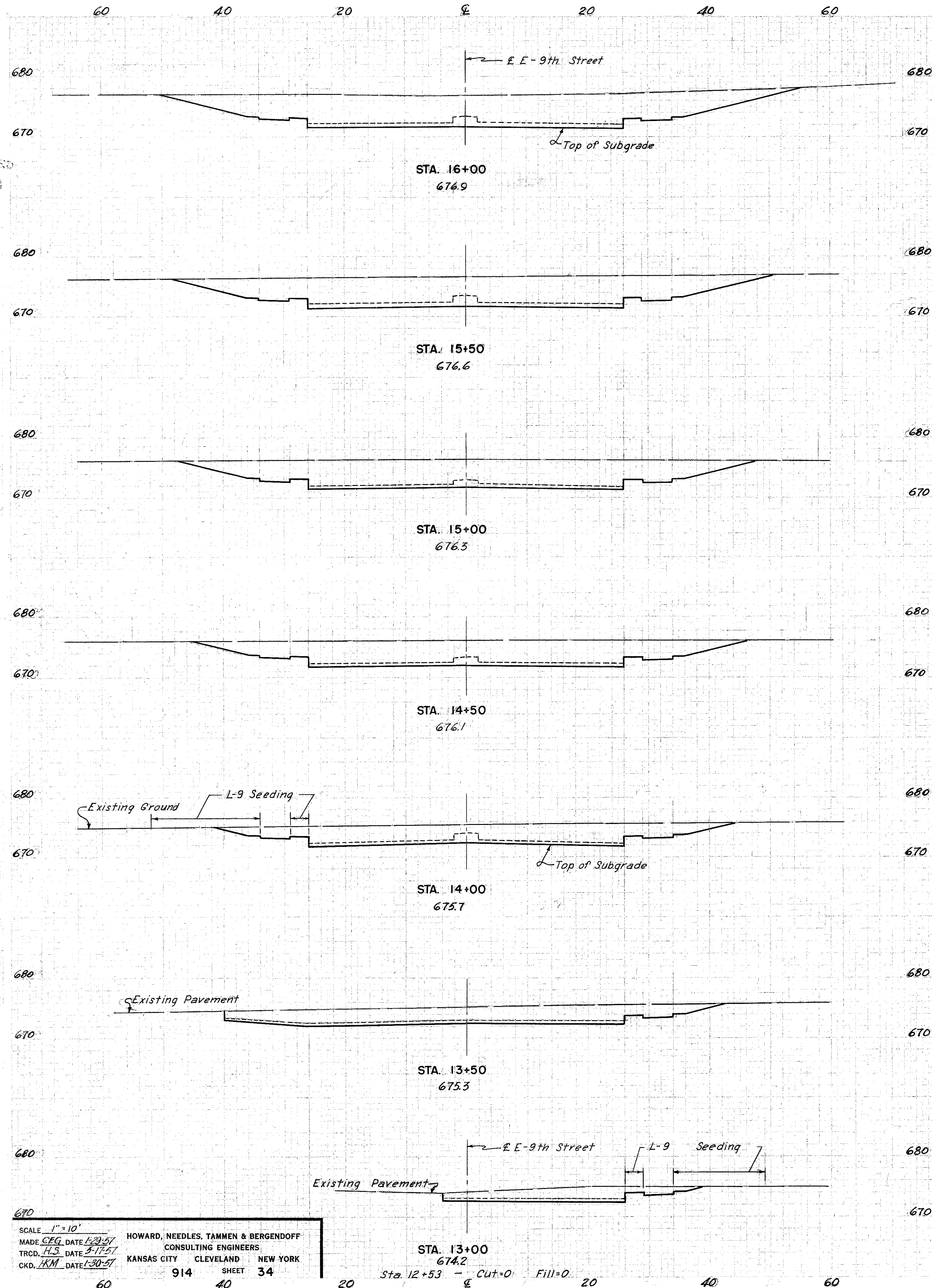
914 SHEET 33

RAMP "E-3" - STA. 0+00 TO STA. 4+25

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

34
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



STATION	SEEDING		SUBBASE		EARTHWORK	
	WIDTH L.F.	AREA SQ.YD.	AREA S.F.	VOL. C.Y.	END AREA EXC.	VOLUME EXC. EMB.
20+23	0	0	0	0	0	0
19+50	53	23	81	3		
19+00	13	17	60	2		
19+00'	89	40	214	2		
18+50	19	26	171	0		
18+50	172	48	385	0		
18+50	43	26	245	0		
17+90	300	60	627	0		
17+90	47	28	319	0		
17+50	231	41	552	0		
17+50	57	28	426	0		
17+00	325	52	846	0		
17+00	60	28.5	488	0		
16+50	364	53	944	0		
16+50	71	28.5	532	0		
16+00	375	53	906	0		
16+00	64	28.5	446	0		
15+50	333	53	781	0		
15+50	56	28.5	398	0		
15+00	303	53	696	0		
15+00	53	28.5	354	0		
14+50	283	53	612	0		
14+50	49	28.5	307	0		
14+00	261	53	509	0		
14+00	45	28.5	243	0		
13+50	186	57	417	0		
13+50	22	33	207	0		
13+00	111	35	265	0		
13+00	18	15	79	0		
12+53	47	13	69	0		
12+53	0	0	0	0		

SCALE 1"=10'
MADE CFQ DATE 1-23-57
TRCD. H.S. DATE 2-11-57
CKD. H.M. DATE 3-30-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914 SHEET 34

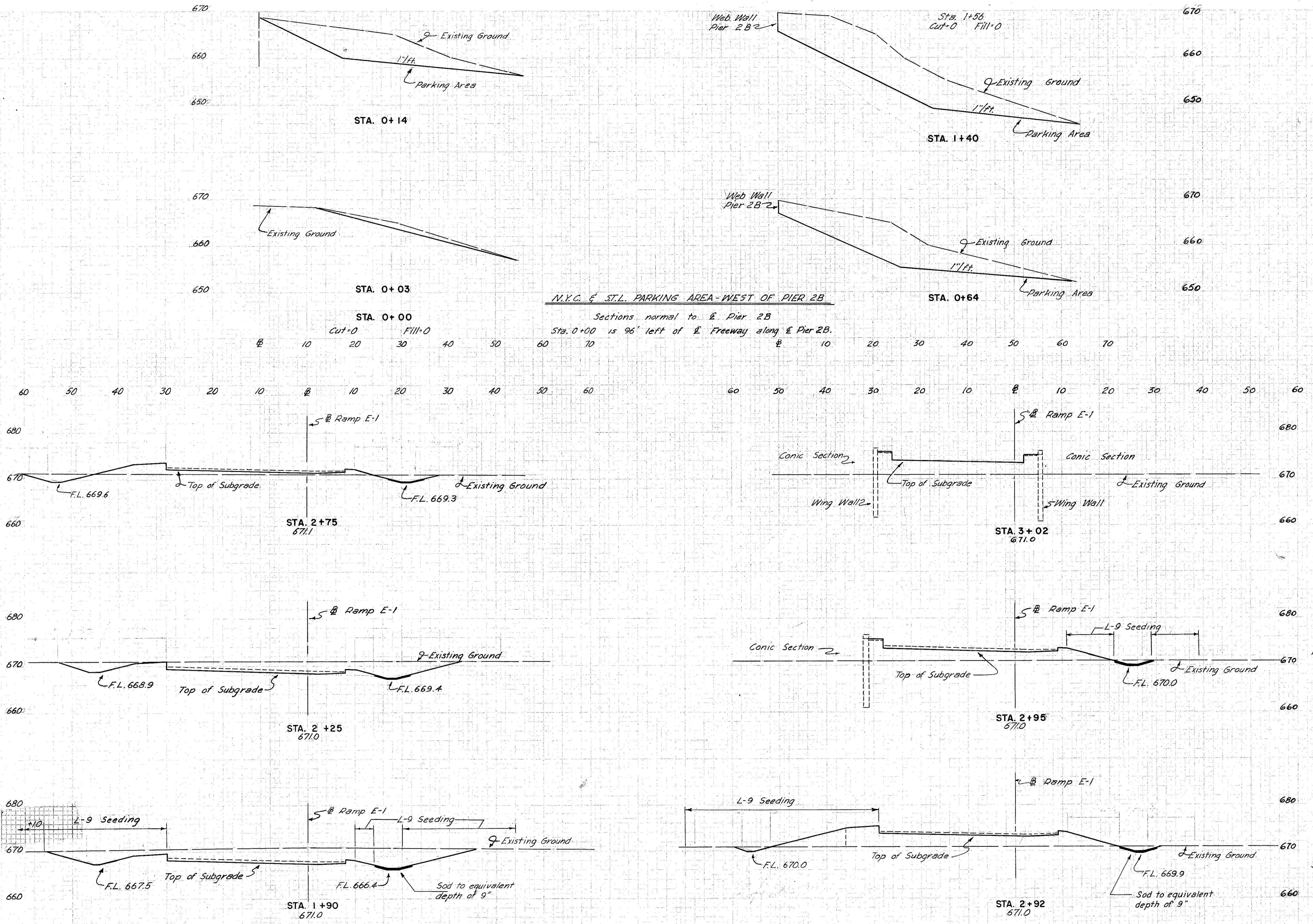
STA. 13+00
674.2
Sta. 12+53 - Cut=0 Fill=0

E-9TH ST - STA. 13+00 TO STA. 19+50

WORK PLANNED
FEB 23 1953

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY--PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



STATION	SEEDING		SUBBASE		EARTHWORK			
	WIDTH L.F.	AREA SQ. YD.	AREA S.F.	VOL. C.Y.	END AREA EXC.	END AREA EMB.	VOLUME EXC.	VOLUME EMB.
1+56					0	0		114 0
1+40					384	0		930 0
0+64					277	0		452 0
0+14					211	0		49 0
0+03					28	0		2 0
0+00 Parking Area					0	0		
3+02 Ramp E-1					0	115		29 + 576 = 545
Ahead 2+95	0				0	107		
Back 2+95	20				3	119		15 + 9 = 24
Ahead 2+92	62	14			3	148		
Back 2+92	62				5	179		
		116						5 77
2+75	61	17	32		11	66		169 58
2+25	58	18	23		172	0		
	237							272 0
1+90	64	18			247	0		
	179		19					237 0
1+55 Ramp E-1 See Sheet No 28	28	12			119	0		

SCALE 1"=10'
MADE BY DATE 2/25/53
TRCD. H.S. DATE 2/25/53
CKD. F.S. DATE 2/25/53

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 35

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42 (1743-18.02)

11A. A.S.T.M. A 242 Steel
The steel for the portions of the plate girders designated as Manganese Steel which are to be joined by welding at bend points shall conform to Fully-weldable A.S.T.M. Designation A 242.

12. STRUCTURAL MANGANESE STEEL
Manganese structural steel shall conform to the following specifications:

	Chemical Composition - Per Cent	
	Ladle	Check
Carbon	0.28 Max.	0.32 Max.
Manganese	1.10 to 1.60	1.65 Max.
Phosphorous	0.045 Max.	0.055 Max.
Sulphur	0.05 Max.	
Silicon	0.30 Max.	
Copper	0.20 Min.	0.18 Min.

Thickness	Physical Properties			
	1/2" and under	Over 1/2 to 3/4" incl.	Over 3/4 to 1" incl.	Over 1 to 1-1/2" incl.
Yield Point	50,000	47,000	46,000	45,000
Tensile Strength	70,000	70,000	67,000	67,000
Elongation in 8"	18% Min.	18% Min.	19% Min.	19% Min.

Bend Test: (Ratio of Bend Dia to Thickness of Specimen)				
	1	1	1 - 1/2	2

All other requirements shall be in accordance with A.S.T.M. A6 and A7.

All parts of manganese structural steel shall be identified by paint marks, and stamping at the mill, and these identification marks with some characteristic painting shall be retained throughout the work of fabrication, so that there shall be no mistakes in the use of manganese structural steel parts where required.

13. PAINTING OF STRUCTURAL STEEL AND CASTINGS.

Painting of superstructure metalwork shall be according to Item S-8 of the Construction and Material Specifications except as modified herein.

- Coats of Paint.
The paint shall be applied by brushing in four coats as follows:
 - A first coat of red lead paint applied in the shop on clean metal surfaces prepared for painting as specified in Section S-8.03.
 - A second coat of red lead paint applied in the field after erection. For surfaces that will be inaccessible after erection, this second coat may be applied either in the shop or in the field.
 - A third and fourth coat consisting of white lead paint. The fourth coat shall be tinted a medium shade of gray that meets the approval of the Director of Highways and the City of Cleveland.
 - Light standards and the steel parts of handrails shall be painted with a first and second coat of red lead paint as specified for the remainder of the structural steel, but the third and fourth coats shall be of aluminum paint.
- Materials
 - The paint to be used for the first and second red lead coats shall be of the following composition and properties:

Pigment	Vehicle
Red Lead (97% grade) - 99.6% (minimum)	Raw Linseed Oil - 35% to 50%
Aluminum Stearate - 0.3 - 0.4%	*Pale heat bodied linseed oil (2) 15%-30%
	Volatle mineral spirits and drier 35% (Maximum)

*The acid number of this oil shall not be over 11, the color not darker than 7 (Gardener 1933) and shall have a Wijs Iodine value of 110 - 125.

Paint Pigment	First Coat		Second Coat	
	73% (minimum)	77% (minimum)	23% (maximum)	24.0 Lbs. (minimum)
Vehicle	27% (maximum)	23% (maximum)		
Weight per gallon	21.0 Lbs. (minimum)	24.0 Lbs. (minimum)		
Consistency	175 Gr. to 250 Gr. (A.S.T.M. Method D562-42T or Federal Specification TT-F-141a, Method 428.1)	5 (minimum)		
Fineness of grind	5 (minimum)			
Drying Time - Set to Touch	6 Hours (maximum) and Dry through - 36 hours (maximum)			

The paint shall be well ground, shall not settle excessively or cake in the container, shall be readily broken up with a paddle to a smooth uniform paste having good brushing properties. The paint, when brushed on a clean, smooth steel panel maintained in a vertical position, shall dry to a smooth uniform finish free from roughness, grit, unevenness, streaking, separation, running, curtaining and sagging. For contrast between the first and second coats, the second coat shall be tinted with lamp-black-in-oil to change its color to a chocolate brown.

b. The white lead third and fourth coats of paint shall conform to Section M-96 of the Construction and Material Specifications.

14. RAILING

Aluminum for bridge railing shall conform to the requirements of Supplemental Specification S-114. The finished handrail shall be free of burrs, sharp corners and rough surfaces. The final adjustment of the handrail shall be such that the aluminum tubing shall not depart more than 1/8 inch from correct line or grade, and shall show no abrupt kinks.

15. ROADWAY DRAINAGE SYSTEM

This item consists of all 6 and 8 inch round galvanized steel or wrought iron pipe, cleanouts, reducers, elbows, scuppers, troughs, cross drains, grating, and hangers. The 12 inch round pipe, including tees, from the piers and abutment to the inlets is included in the roadway quantities.

16. SUB DRAINAGE FOR WEARING SURFACE

The copper drainage tubes have been placed in the West and Central Viaducts by others and shall be placed in the East Approach Viaduct by the Contractor. The steel angle which covers the copper tubes shall be furnished and placed for the West, Central, and East Viaducts by the Contractor.

The steel angle and copper drain tubes shall be paid for under Item S-29 "Subdrainage for Wearing Surface" and shall be measured by the lineal foot of steel angle furnished and placed. The cost of furnishing and installing the copper drain tubes shall be included in the price bid for this item.

17. ASPHALTIC CONCRETE SURFACE COURSE

The work under this contract includes the construction of the wearing surface for the West Approach Viaduct and the Central Viaduct as well as for the East Approach Viaduct. The wearing surface shall consist of a 2 1/2" Asphaltic Concrete Surface Course, Item T-35, laid in two 1 1/4" courses.

1. SPECIFICATIONS

A. DESIGN SPECIFICATIONS - Specifications for design of Highway structures of the State of Ohio Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and February 1, 1955, with a load frequency rating CF-2000-51, adequate for AASHO alternate loading.

B. CONSTRUCTION SPECIFICATIONS - Construction and Material Specifications of the State of Ohio, Department of Highways, dated January 1, 1957. Reference should be made to Supplemental Specifications S-114 dated August 1, 1957, Supplemental Specifications M-706.14 dated July 15, 1949, Supplemental Specifications S-207 dated April 28, 1955, and to Standard Drawing AS-1-54, revised December 1, 1954.

2. DATUM FOR ELEVATIONS

All elevations are Regional Geodetic Survey Data.

3. DIMENSIONS

Dimensions given on the plans are measured horizontally and at 60°F. unless shown otherwise.

4. UTILITIES

Any utility facilities encountered at the site of work which will interfere with portions of the finished Freeway or structures, will be removed or relocated by others, unless otherwise shown. The Contractor shall coordinate his operations with the work of the utility owners or others who may be making the relocations and shall notify the owners of the utilities of his schedule sufficiently in advance to permit them to make the necessary alterations.

5. CONSTRUCTION ADJACENT TO RAILROAD TRACKS

Certain portions of the work will be performed on or adjacent to the right-of-way of the Cleveland Union Terminal Railroad and the New York Chicago and St. Louis Railroad. All construction operations adjacent to railroad tracks, or on railroad premises, lands or rights of way shall be performed subject to contracts between the State and the railroad. The Contractor shall, before commencing work adjacent to railroad tracks or on railroad property, execute a license agreement with the Railroad covering the Contractor's operations and obtain the insurance required.

The following minimum clearances must be maintained between the top of rail or centerline of track and any temporary construction, equipment, or materials placed adjacent to the tracks:

N.Y.C. & St. L.	19'-0" vertical	8'-0" horizontal
Cleveland Union Terminal	21'-0" vertical	8'-0" horizontal

For Pier 3E1 where the edge of footing is less than 8'-0" from centerline of track, the Contractor shall submit, for approval, a plan of operations.

The Contractor shall perform all of his work on the project without interference with any of the Railroad's tracks or operations, or the operations of other railroads using the Railroad's tracks as tenants or licensees.

Whenever excavations are made adjacent to railroad tracks, the Contractor shall install bracing, shoring, sheeting or other supports for excavation adequate, in the opinion of the Railroad's Chief Engineer, to support all tracks and rail traffic during construction. Wherever pedestrian traffic must be accommodated along adjacent railroad tracks, open excavations shall be suitably plank over when construction operations are not in progress.

The Contractor shall submit eight sets of working drawings showing the type and method of bracing, shoring, sheeting and other support for excavation adjacent to Railroad tracks to the Director for approval by the Department of Highways and the Railroad Company. No such excavations adjacent to tracks shall be started until after written approval of the working drawings has been secured from the Chief Engineer of the Railroad or his authorized representative.

After the Contractor has completed all excavation and backfill adjacent to the railroad tracks in compliance with Sec. E-2.04 and E-2.08 of the Construction and Material Specifications, subject to the supervision of the railroad company, nothing in Sec. E-2.04, E-2.08, or G-8.07 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad tracks.

The Contractor shall bear all costs of protecting any underground and overhead facilities and utility lines of the Railroad so as to maintain the same in service without interruption caused by construction operations, either in a relocated position of the lines or in their present location.

The Contractor shall bear all costs of protecting the Railroad's property and traffic including the property and traffic any Tenant Roads made necessary and occasioned by the Contractor's operations, including costs incurred by the Railroad in furnishing competent inspectors, flagmen, watchmen and the like.

6. MODIFICATION AND PROTECTION OF BUILDING AT STA. 46+50.

A. All materials and construction of the existing building shall be thoroughly protected against damage or disfigurement from the construction operations of the viaduct. Protective measures shall be subject to approval by the Engineer, who may require additional protective measures as necessary to secure adequate protection to the building and contents. The Contractor shall repair all damaged facilities and restore them to a condition satisfactory to the Engineer, at the Contractor's own expense.

B. The parapets of the existing building shall be modified in the area beneath the viaduct, by lowering the height of the parapet and recapping the parapet as required and as directed by the Engineer. Parapet modifications shall extend to a uniform height for the full width of the viaduct, and shall extend on each side, beyond the width of the viaduct, a distance sufficient to clear the supporting steelwork not less than 12 inches horizontally. The modifications to the parapets shall also provide a vertical clearance of the lowest adjacent steelwork not less than 8 inches.

Existing parapet materials may be salvaged and can be used to rebuild the modified parapet, provided the materials are cleaned thoroughly, and not damaged, broken or chipped. All salvaged materials for re-use shall be subject to approval of the Engineer, before being re-used in the structure. Salvaged materials not accepted by the Engineer, shall be removed from the premises and disposed of at the Contractor's own expense. All materials used to rebuild the modified parapet, and all construction details, shall match the type and kind of construction used in the existing parapet.

C. After the modification and protection work of the building is completed and accepted by the Engineer, the Contractor shall remove all temporary construction items. He shall remove all rubbish and materials not needed for the modification work from and about the premises, and shall remove all tools, scaffolding, equipment and materials not the property of the owner.

D. Payment for all building modification and protection work shall be made at the contract lump sum price bid for the special item titled "Modification and Protection of Building at Sta. 46+50" which shall include all protection work required or as ordered by the Engineer, all modification work to the parapet, removal of surplus materials, cleanup work, and all labor and materials necessary to fully complete the reconstruction operations.

7. EXCAVATION

The excavation quantity at abutments to be included for payment will be measured between the earth berm elevation and the bottom of the abutment.

At Piers 7B, 8B and 9B the excavation quantity for payment will be computed from the final ground lines after completion of the roadway excavation for Broadway.

8. PILING

A. Piles shall be driven to a minimum bearing capacity of 40 tons for the abutments and 30 tons for the piers.

B. The pile space dimensions given on the plans are at the level of the bottom of footing.

9. CONCRETE

A. The concrete roadway slabs shall be so constructed that, after completion and after removal of forms and any falsework, and after the steel work has deflected under the weight of the concrete and wearing surface, the top surface of the roadway shall conform as nearly as practicable to the elevations and contour lines shown on the plans.

B. The thickness of the concrete floor slab over each girder (top of wearing surface to back of flange angles) at the girder supports is given on the plans. Except as otherwise noted, the steel girders of all spans shall be fabricated with camber to compensate for the deflection due to weight of slab and steel. The theoretical deflections for each span are tabulated on the plans. The allowances to be made in screed setting to compensate for the deflections due to the dead load weight of the concrete are indicated in this tabulation. These allowances are to be made above the elevations stipulated on the plans for finished pavement surfaces. Screeds may require turner adjustment due to irregularities in the fabricated steel. Steel beams shall also be cambered where the total deflection exceeds 3/4 inch. The slab shall be of uniform thickness between beams, with camber setting obtained by thickening the haunches over the beams which are not cambered.

C. The concrete of the Roadway slab shall be poured in special sequence. The sequences are shown on the plans, including the extent and direction of individual pours. The Contractor may submit for approval by the Engineer, alternate schemes of placing concrete slabs. The sequence of slab construction shown on the plans does not apply to the sidewalk and median.

D. Transverse construction joints through the slab are shown on the plans. The Contractor may provide additional transverse construction joints at other locations, subject to the approval of the Engineer. At each location, the Contractor shall provide a keyed joint.

10. REINFORCING STEEL

Bars shall be, unless otherwise shown, 3 inches clear from the face of the concrete in the bottoms of footings, 1 inch clear in slabs and 2 inches clear elsewhere.

Bar sizes are designated on the plans by numbers, the first digit in three digit marks and the first two digits in four digit marks indicate the size of the bar.

If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Section S-4.02 need not be furnished and replacement bars will not be required.

11. STRUCTURAL CARBON STEEL

The steel for the beams which are to be fabricated by welding shall conform to ASTM Designation A-373. All other structural steel shall conform to either ASTM A-7 as per Sec. M-7.4(a) of the Construction and Material Specifications or to A-373.

All welding shall be Class "A", except as noted in the tail of the welding symbol.

Holes in web plates, flange angles and cover plates of built-up girders and in all metal connected to the built-up girders through these holes shall be sub-punched or subdrilled and reamed.

All built-up girders shall be assembled at their shop and field splices in the shop with bearing points at their correct relative elevations and holes for rivets shall be reamed while the built-up girders are assembled.

For requirements regarding reaming of cross frame and bracing connections, see Section S-7.11.

Plates 36 inches wide and under shall have rolled edges. Edges of angles cut to special size shall have finished edges. Sheared edges of steel plates in excess of three-quarters inch thick shall be planned to a depth of one-quarter inch. Irregular shaped splice plates at girder bend points shall have smooth edges as required below for flame cut edges and corners at the bend point shall be cut on a radius without notches or other defects.

Flame cutting with oxy-acetylene blow pipe may be used as approved by the Engineer. Flame cutting shall be done only with experienced operators and so as to avoid burning the edges of the cut. The cut shall be made by use of machines designed to guide the blow pipe so as to give a smooth cut corresponding to the desired outline. Any ragged edges must be carefully ground off.

Splice locations are shown on the Plans for both shop and field splices for the built-up girders. Should the Contractor desire to alter locations of splices or to modify splice details for his preference in fabrication or erection, or should he desire to increase the number of splices, alterations may be made subject to the approval of the Engineer, provided any increase in weight of the metalwork due to such changes shall not be included in the final pay quantity.

Rivets shall be 7/8 inch in diameter unless otherwise specified. In the preparation of working drawings for the built-up girders, the spacing of rivet holes shall be made to maintain the full net section shown on the Plans for all tension members. Outstanding legs of all back to back stiffener angles on the built-up girders shall be stitch riveted at 6-inch maximum staggered pitch unless otherwise shown.

Steel Castings - Erected only, Item S-7, refers to the castings for the expansion joint at the East End Pier. They are on the construction site and shall be erected under this contract.

* High strength bolts according to Supplemental Specification S-207 may be used in place of rivets for field connections, tightening being done by Method T (A).

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

GENERAL NOTES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE _____ HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE _____ DATE _____ CONSULTING ENGINEERS
TRCD _____ DATE _____ KANSAS CITY CLEVELAND NEW YORK
CKD _____ DATE _____ 914 (2E) B SHEET 6

DATE PLACED
FEB 23 1953

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	SUPER-STRUCTURE	ABUTMENT IB	ABUTMENT EI	ABUTMENT E2	EAST END PIER	PIER IB*	PIER 2B	PIER 3B**	PIER 4B	PIER 5B	PIER 6B	PIER 7B	PIER 8B	PIER 9B	PIER 2EI	PIER 3EI	PIER 4EI	PIER 2E2	GENERAL	TOTAL	AS BUILT	
E-2	Cofferdams, Cribbs & Sheeting	L.S.																				Lump Sum		
E-2	Unclassified Excavation	C.Y.		220	75	100		800	1,350	1,400	950	270	300	280	260	260	290	220	200	250		7,225		
J-10	Type "A" Riprap	S.Y.		500																		500		
S-1	Class "C" Concrete - Abutments	C.Y.		50	36	69	46															201		
S-1	Class "C" Concrete - Pier Cols. & Caps	C.Y.						560	465	580	585	96	94	94	93	94	90	130	111	140		3,132		
S-1	Class "C" Concrete - Superstructure	C.Y.	5,150																			5,150		
S-1	Class "E" Concrete - Footings	C.Y.						354	374	400	392	79	79	86	79	79	72	68	68	109		2,239		
S-1	Class "E" Concrete - Stub Abutments & East End Pier	C.Y.		185	63	80	345															673		
S-3	Waterproofing - Premolded Sealing Strip	L.F.		39		15																54		
S-3	Type "B" Waterproofing	S.Y.	52,600 (1)					5	7													12		
S-3	Type "C" Waterproofing	S.Y.	(46,700)																			16,700		
S-4	Reinforcing Steel	Lbs.	1,674,072	18,962	7,985	15,419	20,636	136,739	138,357	153,934	156,240	37,884	36,967	55,084	39,849	42,712	15,762	32,715	29,973	39,144		2,652,434		
S-7	Structural Carbon Steel	Lbs.	5,875,000																			5,875,000	C-8 5,875,000 6,034,500	
S-7	Steel Castings & Forgings - Fabricated & Erected	Lbs.	135,000																			135,000	C-8 135,000 137,430	
S-7	Steel Castings - Erected only	Lbs.	15,000																			15,000		
S-8	Field Painting of Structural Steel & Castings (3 coats)	Lbs.	13,025,000																			13,025,000	C-8 13,025,000 12,583,000	
S-9	1/2" Gray Rubber Preformed Expansion Joint Filler	S.F.						75	72	63	35											245		
S-9	1" Gray Rubber Preformed Expansion Joint Filler	S.F.		37		48																85		
S-14	Railing (Aluminum Rail & Supports, Conc. Parapets & End Posts)	L.F.	3,888																			3,888		
S-16	First Test Pile (12" C.I.P. Reinforced Concrete)	L.S.																				Lump Sum		
S-16	First Test Pile (14" C.I.P. Reinforced Concrete)	L.S.																				Lump Sum		
S-17	First Pile Test Load (12" C.I.P.)	L.S.																				Lump Sum		
S-17	First Pile Test Load (14" C.I.P.)	L.S.																				Lump Sum		
S-17	Subsequent Pile Test Loads (12" C.I.P.)	Ea.																				1	1	
S-17	Subsequent Pile Test Loads (14" C.I.P.)	Ea.																				2	2	
S-18	12" C.I.P. Reinforced Concrete Piles	L.F.		2,679	730	1,646																5,055	C-8 5,055 3,022	
S-18	14" C.I.P. Reinforced Concrete Piles	L.F.						4,522	9,394	11,609	5,784	2,640	2,640	3,300	2,640	2,640	1,947	1,570	1,930	3,017		53,533	C-8 53,533 49,492	
S-29	Porous Backfill	C.Y.		51	20	31		46														148		
S-29	Roadway Drainage System	Lbs.	20,600						3,800	1,700	4,800											40,970		
S-29	Subdrainage for Wearing Surface	L.F.	8,580																			8,580		
T-35	Asphaltic concrete surface course Type C (60-70)	C.Y.	3,655*																			3,655*		
Special	Modification and Protection of Building at Sta. 46+50	L.S.																				Lump Sum		
S-25(U)	Parapet Junction Box	Ea.	40																			40		
S-25(V)	2" I.D. Duct	L.F.	2,500																			2,500		
S-25(W)	3" I.D. Duct	L.F.	1,000																			1,000		
S-25(X)	Electrical Ground	Ea.							1					1						1	1	4		
S-25	Lamp Standards, G' brackets as per plan	Each	34																			34		
Special	Single Pole Overhead sign assembly, Type A (B-18) as per plan	Each	1																			1		
S-7	Structural Manganese Steel, including fully-weldable A.S.T.M. Designation A242 steel @ bend points	Lb.	4,000,000																			4,000,000	C-8 4,000,000 6,398,000	

* Carried from sheet No. 9
** Carried from sheet No. 5

* Pier 18 quantities include quantities for retaining wall adjacent to Pier
** Pier 38 quantities include quantities for Pier 1E2

+ Includes following:
East Approach 3,200 L.F.
Central Viaduct 4,450
West Approach 930
Total 8,580 L.F.

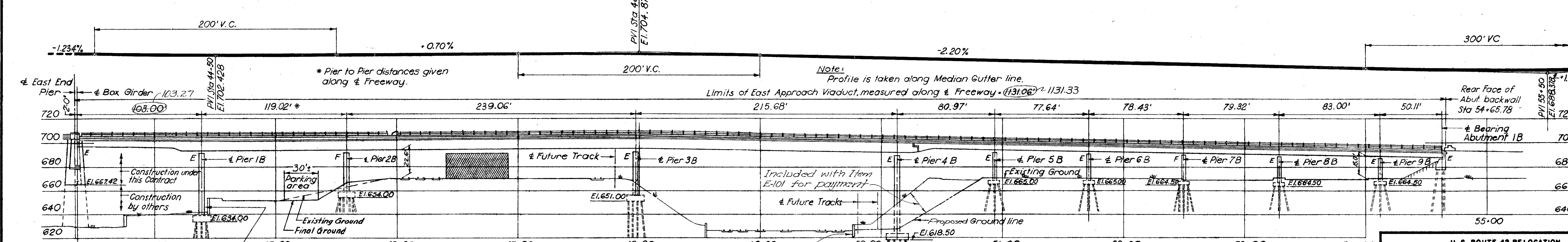
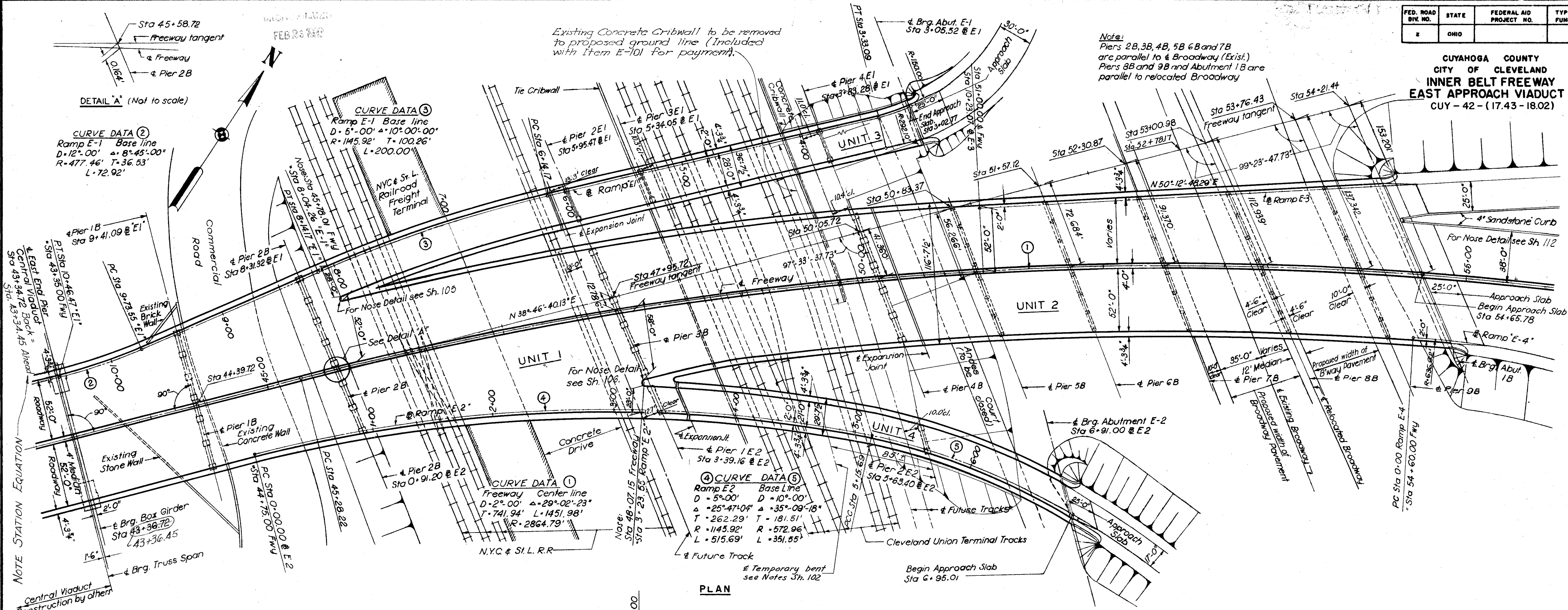
+ Includes following:
East Approach 1,160 C.Y.
Central Viaduct 2,170
West Approach 325
Total 3,655 C.Y.

(1) Includes following:
East Approach 16,700 S.Y.
Central Viaduct 31,200
West Approach 4,700
Total 52,600 S.Y.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. GUY - 42 - 17.50
ESTIMATED QUANTITIES
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: MADE W.B. DATE 3-27-57
TRCD W.B. DATE 3-27-57
CKD H.H.C. DATE 3-6-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET - 37

Revised 1-6-58

CUYAHOGA COUNTY
CITY OF CLEVELAND
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
CUY-42-(17.43-18.02)



U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-1750

GENERAL PLAN AND ELEVATION

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 40'
MADE: N.B. DATE: 11-29-56
TRCD: W.B. DATE: 3-18-57
CHK: H.M.C. DATE: 8-23-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-38

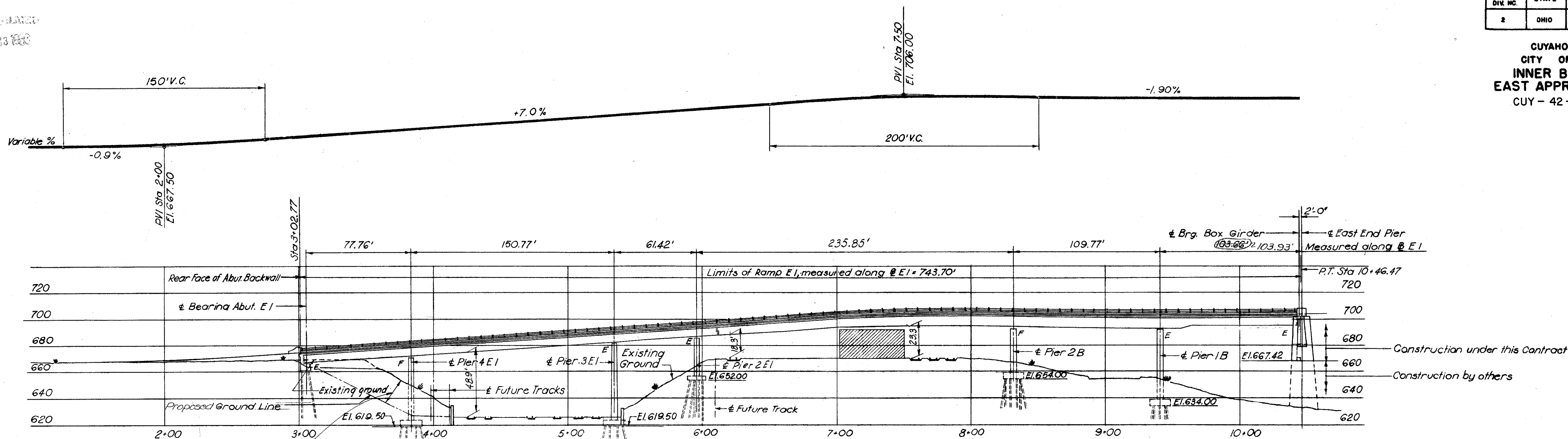
Revised 2-13-58

APPROVED
FEB 23 1956

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

39
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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



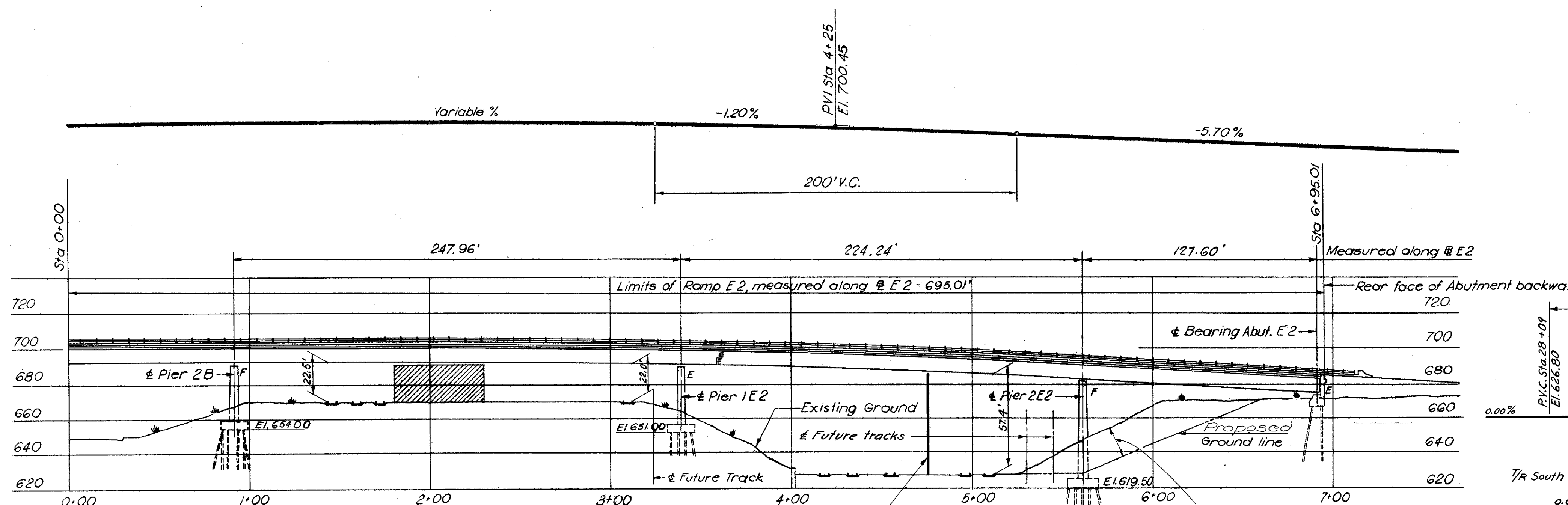
Included with Item E-101 for payment.

ELEVATION - RAMP E1

(Looking at north face of viaduct.)

Freeway		Ramp E1		Ramp E2	
Station	Super-elevation	Station	Super-elevation	Station	Super-elevation
43+34.72 to 43+50	0.00'/ft	1+75 to 2+00	Varies	3+25 to 3+50	Varies
43+50 to 46+75 So. bound Rdwy.	Varies	2+00 to 3+00	0.025'/ft	3+50 to 4+75	0.04'/ft
43+50 to 47+00 No. bound Rdwy.		3+00 to 4+22	Varies	4+75 to 5+50	Varies
46+75 to 59+00 So. bound Rdwy.	0.03'/ft	4+22 to 5+00	0.0156'/ft	5+50 to 7+75	0.07'/ft
59+00 to 7+00 No. bound Rdwy.	-0.03'/ft	5+00 to 6+50	Varies	7+75 to 8+75	Varies
		6+50 to 7+50	-0.035'/ft	8+75 to 10+00	0.0156'/ft
		7+50 to 10+46.67	Varies	10+00 to 10+25	Varies

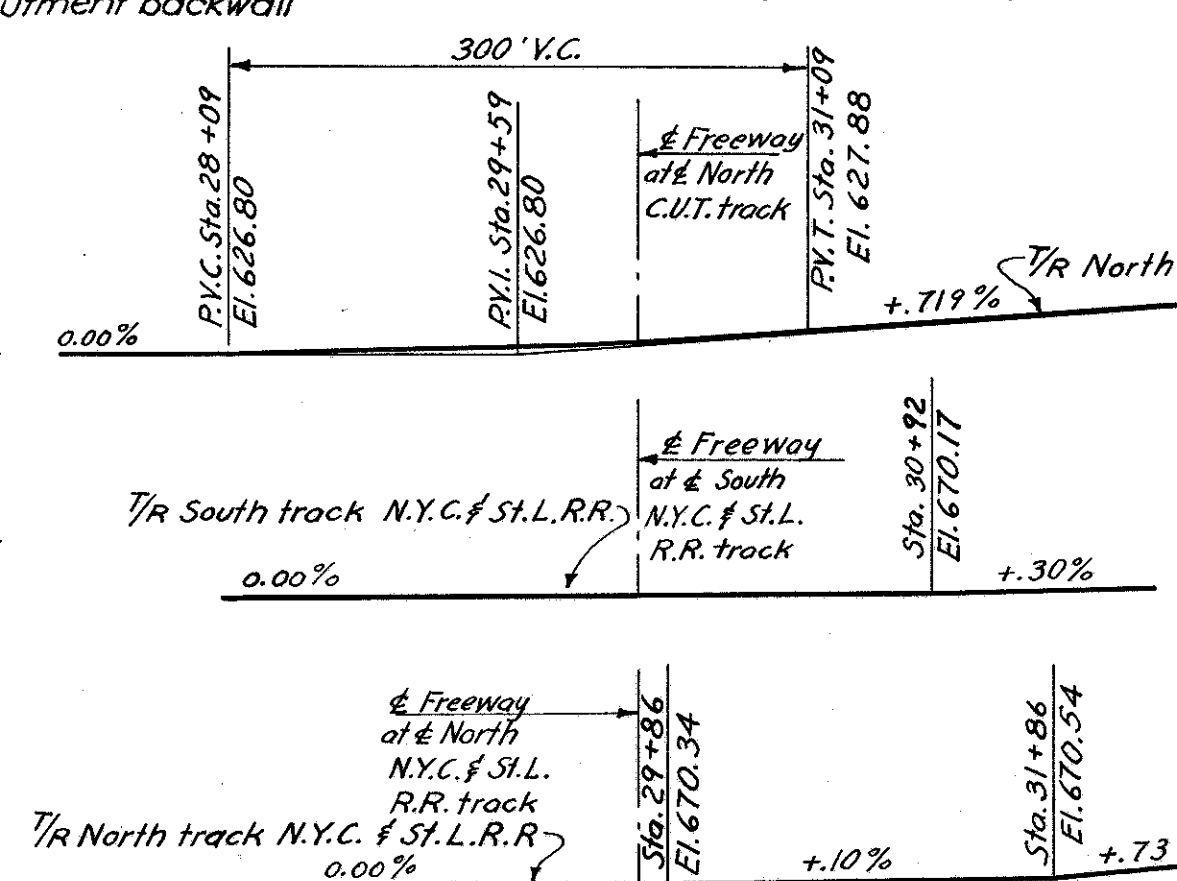
Note:
Profile Grade for Freeway is along both median gutters.
Profile Grade for Ramps E-1 and E-2 is along the base line.
Superelevation is shown as + or - for the opposite edge with respect to the profile.



ELEVATION - RAMP E2

(Looking at south face of viaduct)

Note:
E denotes expansion shoes
F denotes fixed shoes
Railroad track clearances shown are actual minimum clearances.



TRACK PROFILES (looking north)

Hor. 1" = 100'
Vert. 1" = 10'
Revised 2-13-58

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY - 42 - 17.50
ELEVATION - RAMP E1 AND E2
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1" = 40' Unless Noted
MADE W.B. DATE 12-4-56
TRCD H.G. DATE 2-7-57
CRD H.C. DATE 2-28-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET - 39

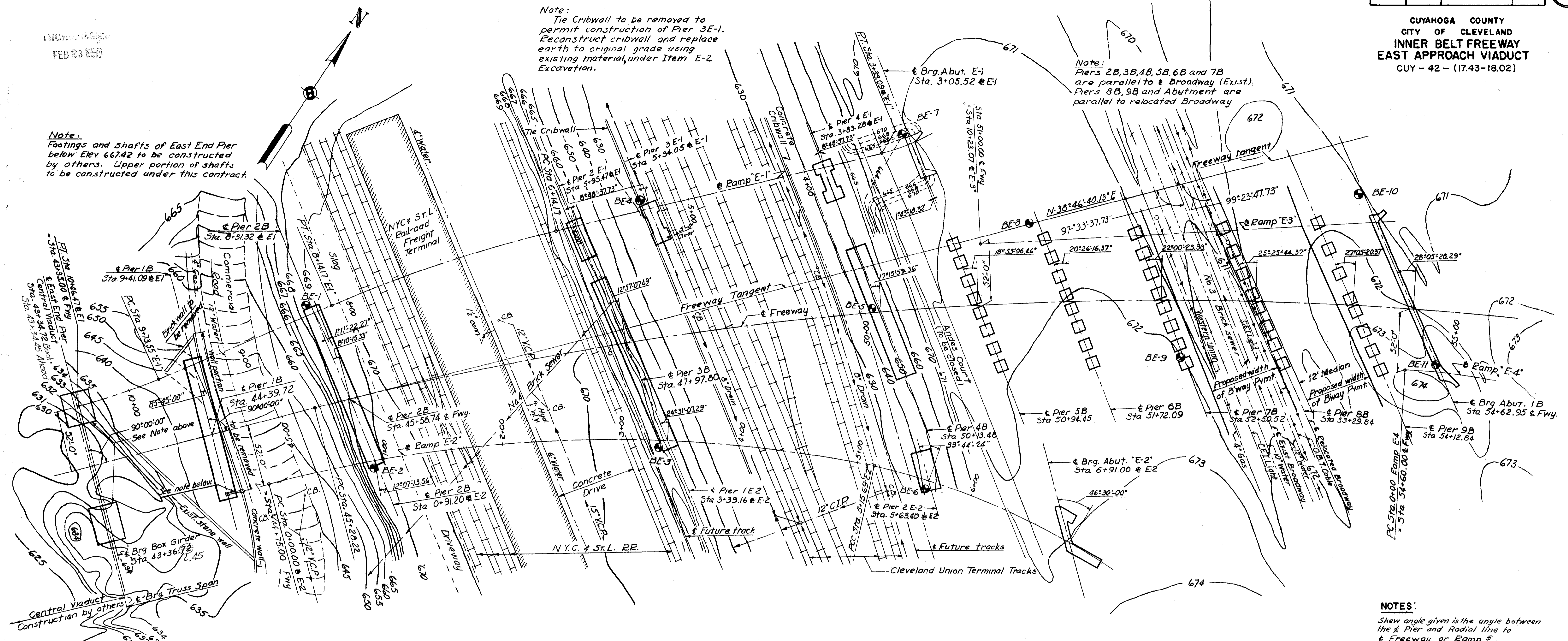
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

REVISIONS
FEB 23 1957

Note:
Tie Cribwall to be removed to permit construction of Pier 3E-1. Reconstruct cribwall and replace earth to original grade using existing material under Item E-2 Excavation.

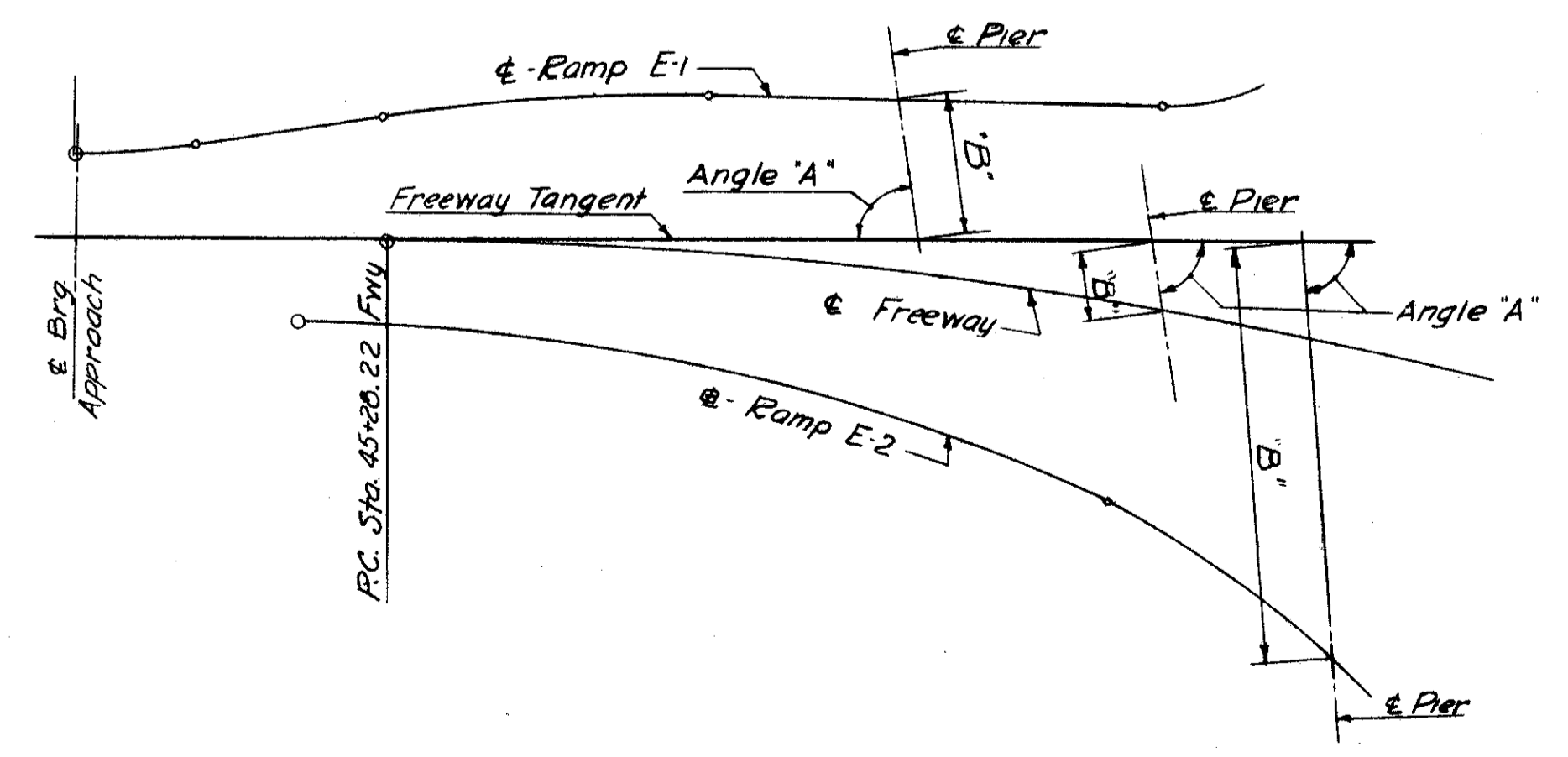
Note:
Piers 2B, 3B, 4B, 5B, 6B and 7B are parallel to Broadway (Exist.). Piers 8B, 9B and Abutment are parallel to relocated Broadway

Note:
Footings and shafts of East End Pier below Elev. 667.42 to be constructed by others. Upper portion of shafts to be constructed under this contract.



Note:
New retaining wall to be constructed to match existing wall. For details see Sh. 44 & 45. Existing walls to be removed under Item E-2 Excavation.

NOTES:
Skew angle given is the angle between the Pier and Radial line to Freeway or Ramp E.
Existing contours shown by solid lines. Proposed contours shown by dashed lines. Excavation at Abutment E1 shall be performed under this contract as indicated by proposed contours. (To be included in roadway quantities.)
For curve data, see Sh. 38.



PIER AND ABUTMENT LOCATION FROM FREEWAY TANGENT

PIER	FREEWAY TAN. STA.	ANGLE "A"	DIM. "B"
2 B	45+58.72	82°26'22.27"	0.164'
3 B	47+95.72	do.	12.786'
4 B	50+05.72	do.	41.360'
5 B	50+83.37	do.	56.266'
6 B	51+57.12	do.	72.684'
7 B	52+30.87	82°26'22.27"	91.370'
8 B	53+00.98	80°36'42.27"	112.939'
9 B	53+76.43	do.	137.342'
Abut. 1 B	54+21.44	80°36'42.27"	153.201'
2 E1	47+95.72	82°26'22.27"	95.288'
3 E1	48+56.95	do.	93.936'
4 E1	50+07.24	do.	90.618'
Abut. E1	50+85.00	82°26'22.27"	91.459'
2 E2	50+05.01	86°48'55.80"	188.900'
Abut. E2	51+02.54	86°48'55.80"	265.538'

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

GROUND PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

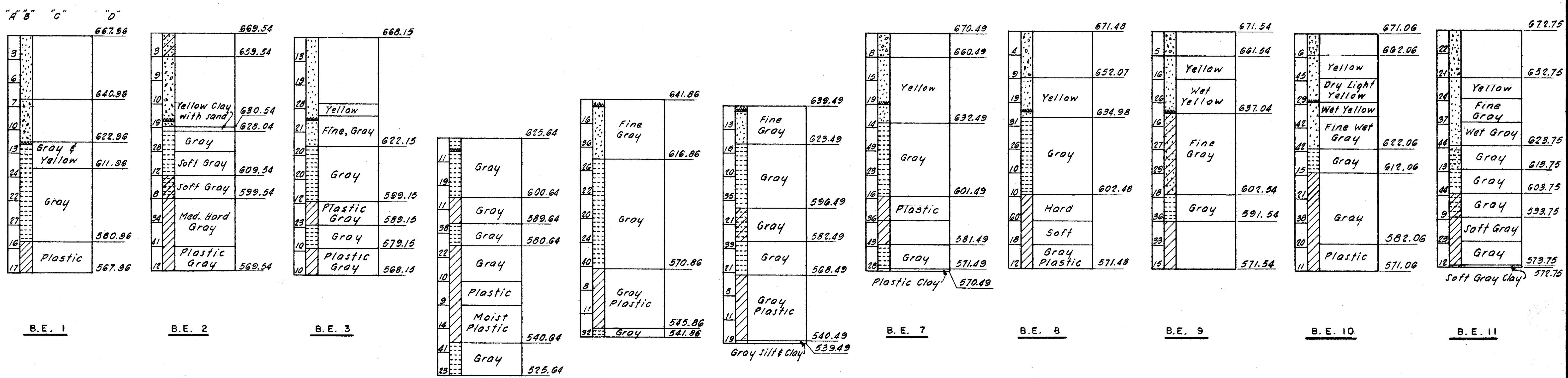
SCALE 1" = 40'
MADE 2/15 DATE 1-1-57
TRCD 4/6 DATE 2-1-57
CKD H.M.C. DATE 2-2-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET 40

Revised 2-13-58

FEB 23 1956

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



BORING LOGS
Vert. 1" = 20"

SOIL LEGEND

- Sand
- Sand & Gravel
- Sand & Clay
- Sand & Silt
- Silt
- Silt & Clay
- Clay
- Cinders & Debris
- Ground Water

NOTES:
With reference to B.E. 1
In Column "A" the figures 3, 6, 7 etc. are the hammer blows required to advance sample spoon one foot.
Column "B" shows the legend of soil type and ground water elevations.
Column "C" shows soil classification.
Column "D" shows elevation of soil levels. Elevation at top is top of ground, elevation at bottom is bottom of hole.
Boring information, logs and samples of materials encountered may be examined in the Cleveland City Engineers office but the borings are not guaranteed to present complete picture of subsurface conditions to be encountered.

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-1750

BORING LOGS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE N.F.C. DATE 11-2-56
TRCD M.E.C. DATE 2-7-57
CHD G.T.H. DATE 12-17-56

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET 41

REINFORCEMENT SCHEDULE - EAST END PIER									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)
				A	B	C	D		
P405	20	4'-3"	Str.						57
P501	40	13'-11"	104	12'-3"	1'-8"				581
P502	10	17'-11"	104	16'-3"	1'-8"				187
P503	6	24'-4"	104	22'-8"	1'-8"				152
P504	96	16'-1"	105	12'-1"	2'-0"				1610
P505	2 38/100	15'-6" to 17'-2"	Str.					78"	818
P506	14	16'-3"	Str.						237
P507	8	15'-3"	104	9'-6"	5'-9"				177
P508	38	14'-0"	Str.						355
P509	2 38/100	28'-0" to 29'-7"	138	14'-10 1/2"	4'-0 1/2"	3'-2"	1'-9"	A=1 1/2" B=3 1/2"	365
P510	6	36'-4"	109	14'-7"	3'-2"				227
P511	6	12'-0"	Str.						75
P512	20	10'-11"	139	4'-3"	3'-1"	3'-0"			228
P513	12	7'-6"	Str.						94
P514	46	13'-6"	104	11'-9"	1'-9"				648
P601	32	12'-0"	Str.						577
P602	22	16'-9"	Str.						537
P603	14	8'-0"	Str.						168
P604	12	10'-8"	105	4'-8"	3'-0"				192
P605	10	11'-3"	105	5'-5"	3'-0"				171
P801	42	28'-9"	Str.						3224
P802	18	18'-3"	Str.						877
P803	36	31'-6"	Str.						3028
P804	24	21'-0"	Str.						1946
P805	38	16'-0"	Str.						1623
P806	22	12'-9"	Str.						749
P807	6	13'-7"	104	7'-7"	6'-0"				218
P808	64	11'-6"	Str.						1965
TOTAL									20,636

REPLACEMENT BARS									
499	1	5'-3"	Str.						
599	41	5'-7"	Str.						
699	50	5'-11"	Str.						
799	2	6'-3"	Str.						
899	3	6'-6"	Str.						
999	2	6'-10"	Str.						
1099	2	7'-2"	Str.						
1199	36	7'-6"	Str.						

NOTE: Replacement bars are for entire structure.

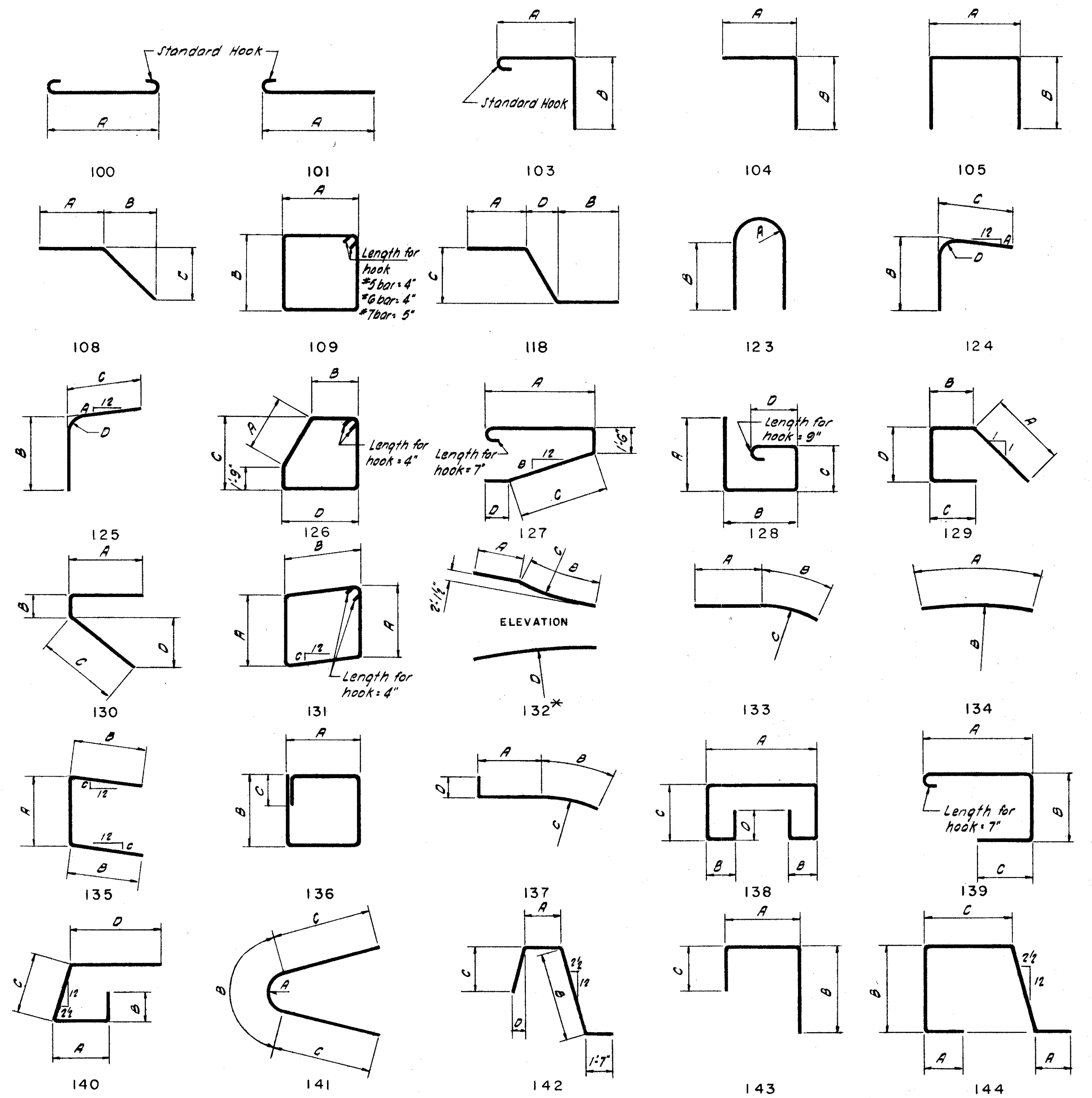
REVISIONS
FEB 23 1967

Length for Standard Hook
 # 5 bar = 7"
 # 6 bar = 9"
 # 8 bar = 1'-1"
 # 9 bar = 1'-3"
 # 10 bar = 1'-5"
 # 11 bar = 1'-7"

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
 CITY OF CLEVELAND
 INNER BELT FREEWAY
 EAST APPROACH VIADUCT
 CUY-42-(17.43-18.02)



BENDING DIAGRAMS

NOTE: All bar dimensions are "out to out"
 * Radii C & D may be bent in field.

U. S. ROUTE 42 RELOCATION
 INNER BELT FREEWAY
 EAST APPROACH VIADUCT
 BR. NO. CUY-42-1750
 EAST END PIER REINFORCEMENT SCHEDULE
 BENDING DIAGRAMS
 CLEVELAND CUYAHOGA COUNTY OHIO

SCALE No Scale
 MADE P.C. DATE 1-26-67
 TRCD N.R.C. DATE 2-8-67
 CKD H.R.G. DATE 2-27-67

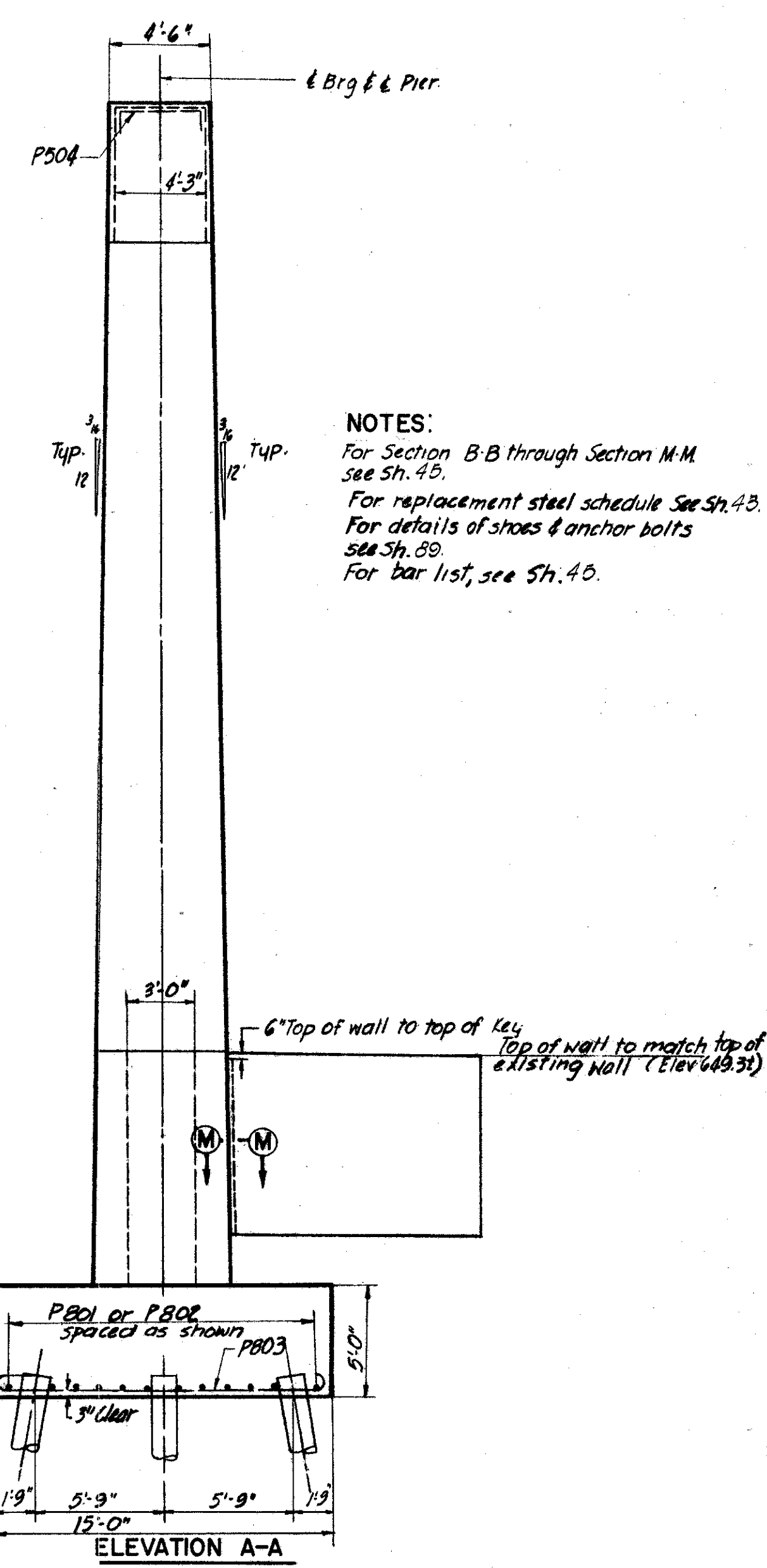
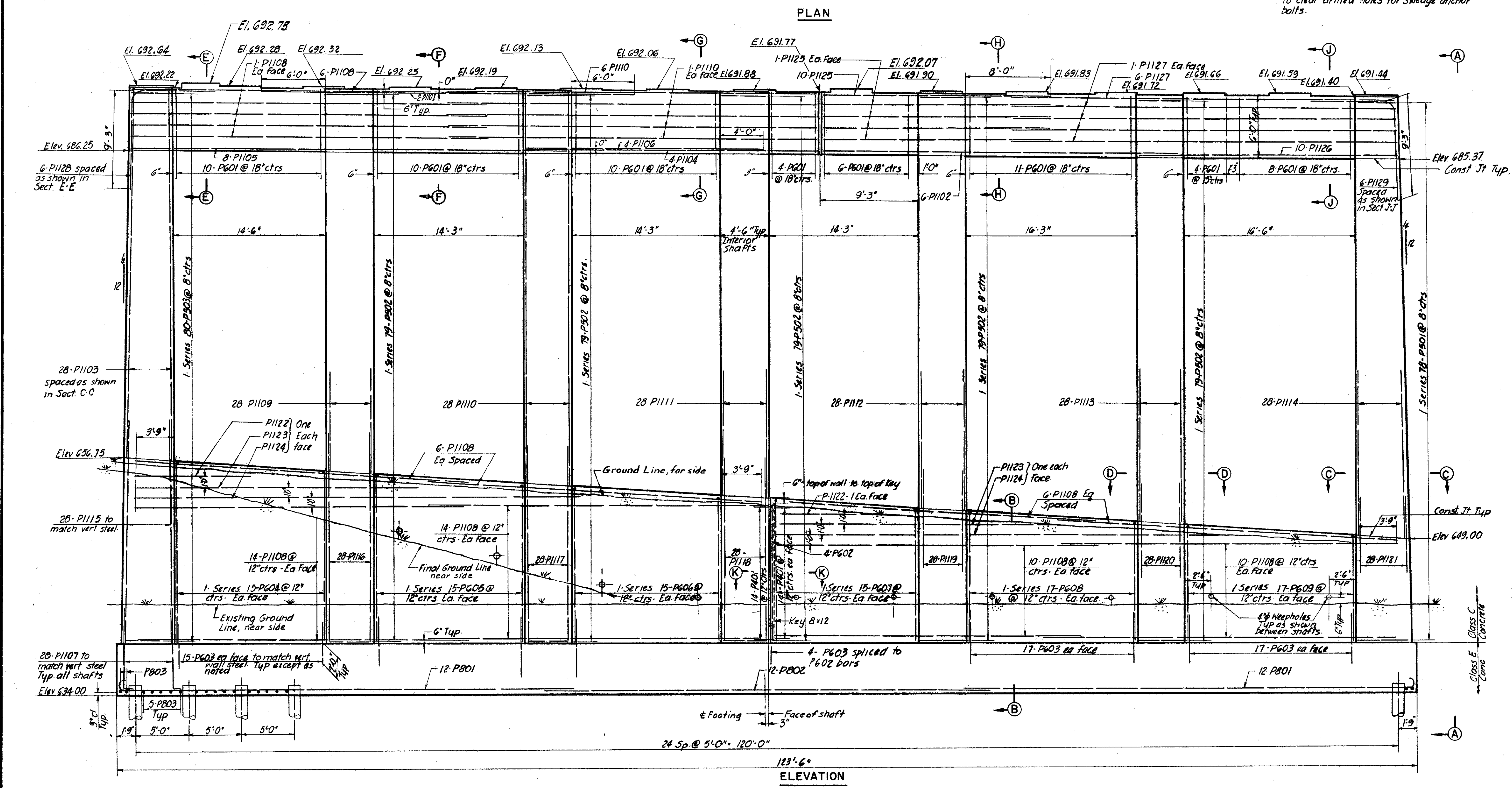
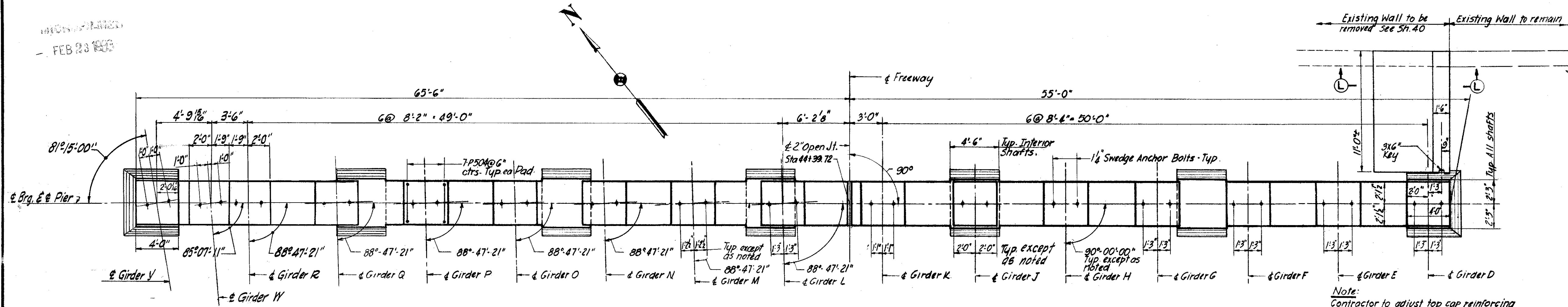
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET- 43

FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

44
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:
For Section B-B through Section M-M see Sh. 45.
For replacement steel schedule see Sh. 43.
For details of shoes & anchor bolts see Sh. 39.
For bar list, see Sh. 40.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

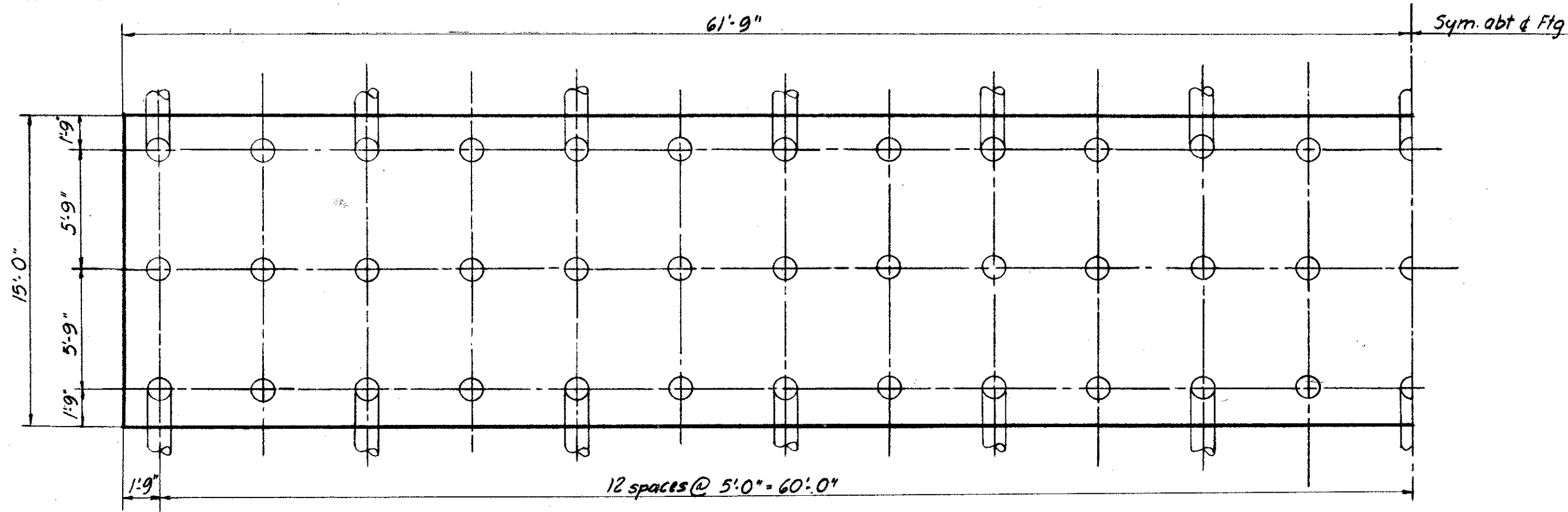
PIER IB

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0"
MADE C.T.M. DATE 1-11-57
TRCD H.R.S. DATE 2-11-57
CHK H.C.C. DATE 2-25-57

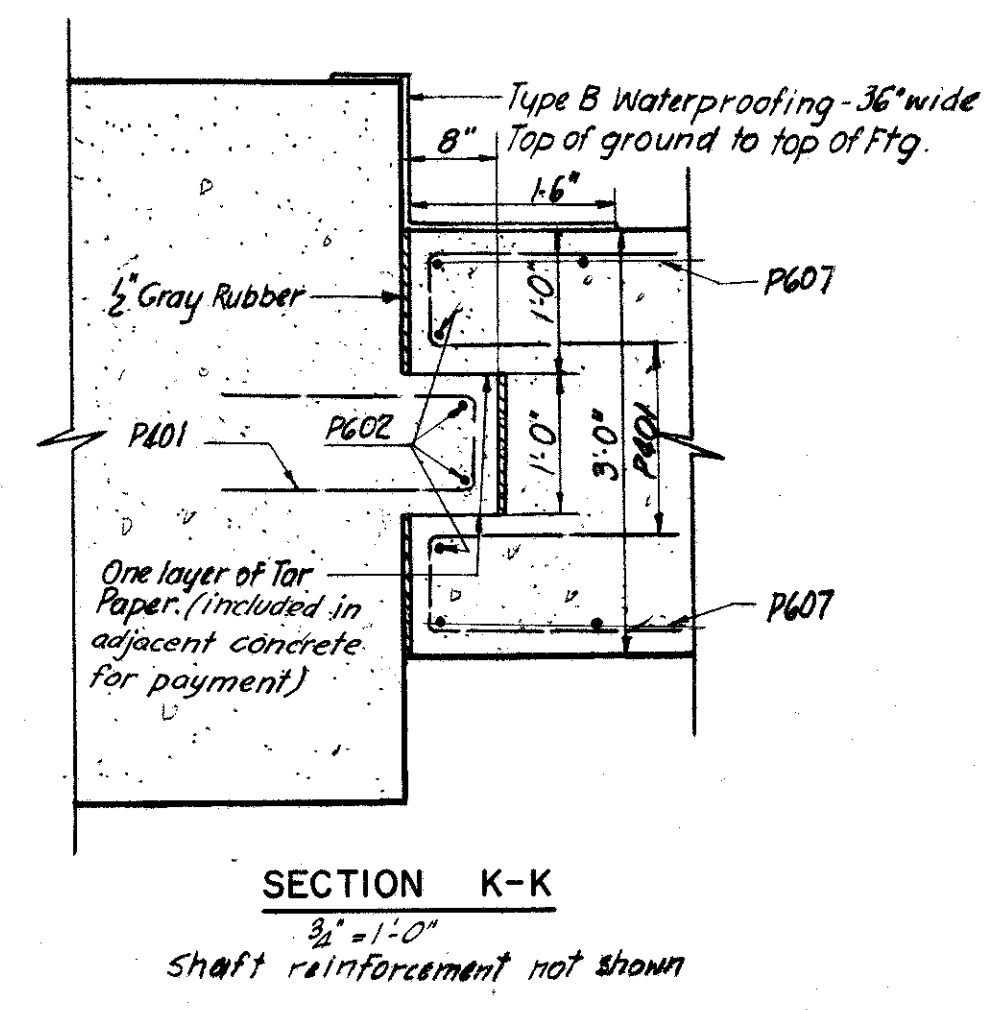
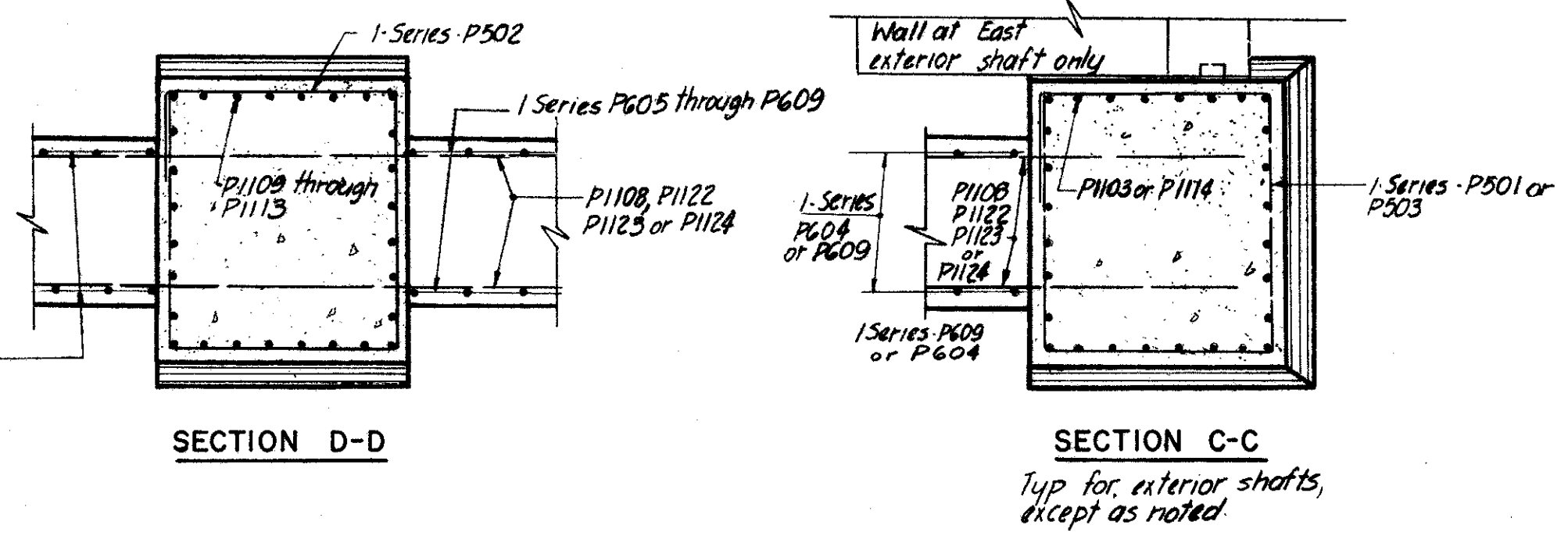
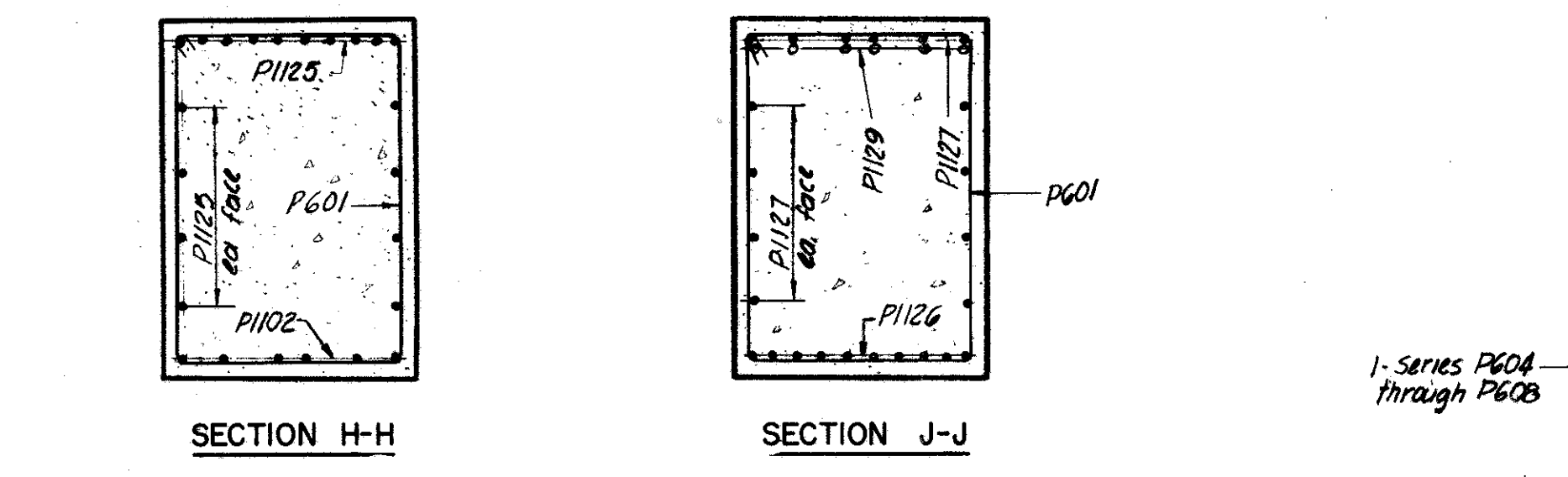
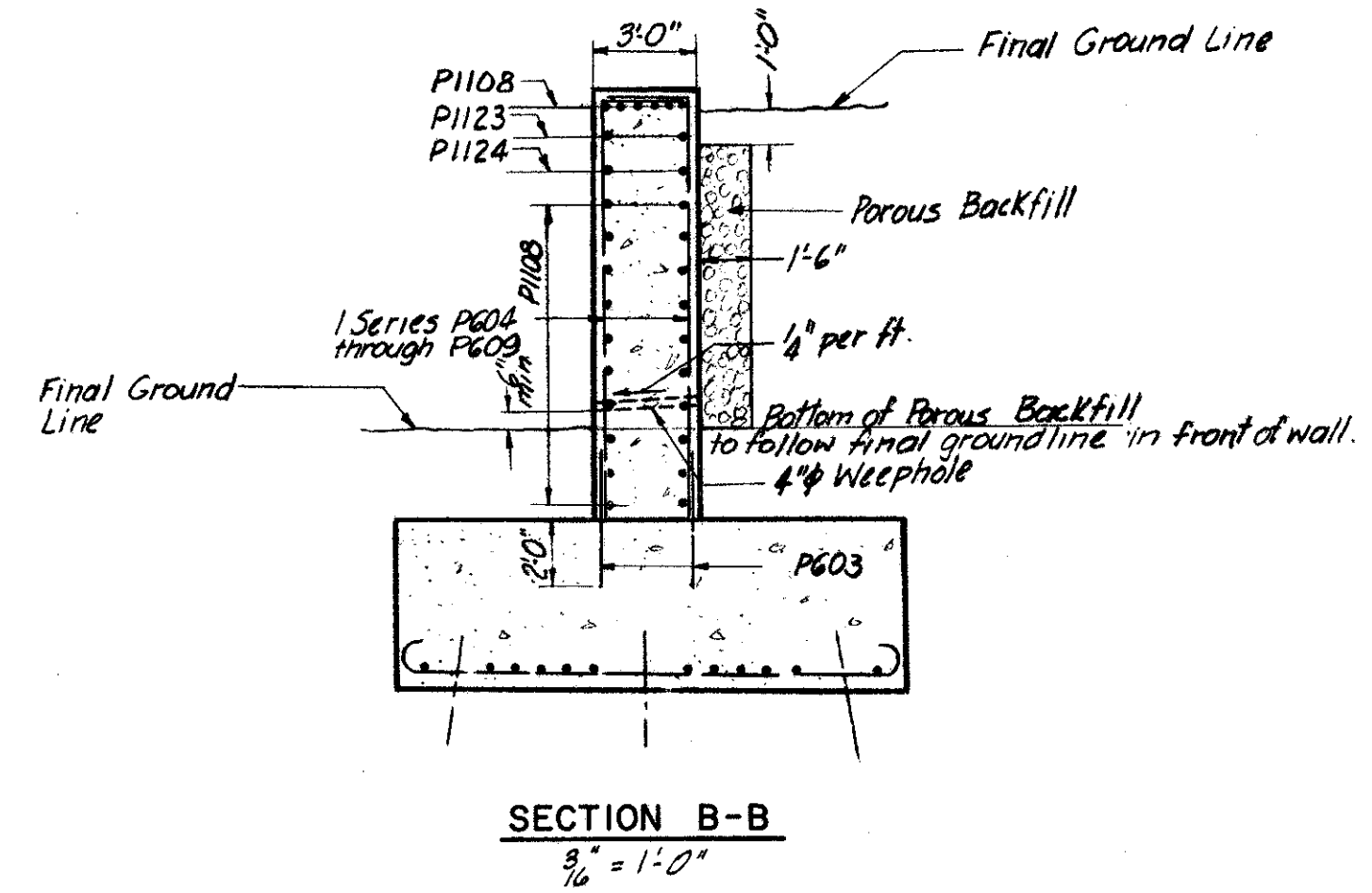
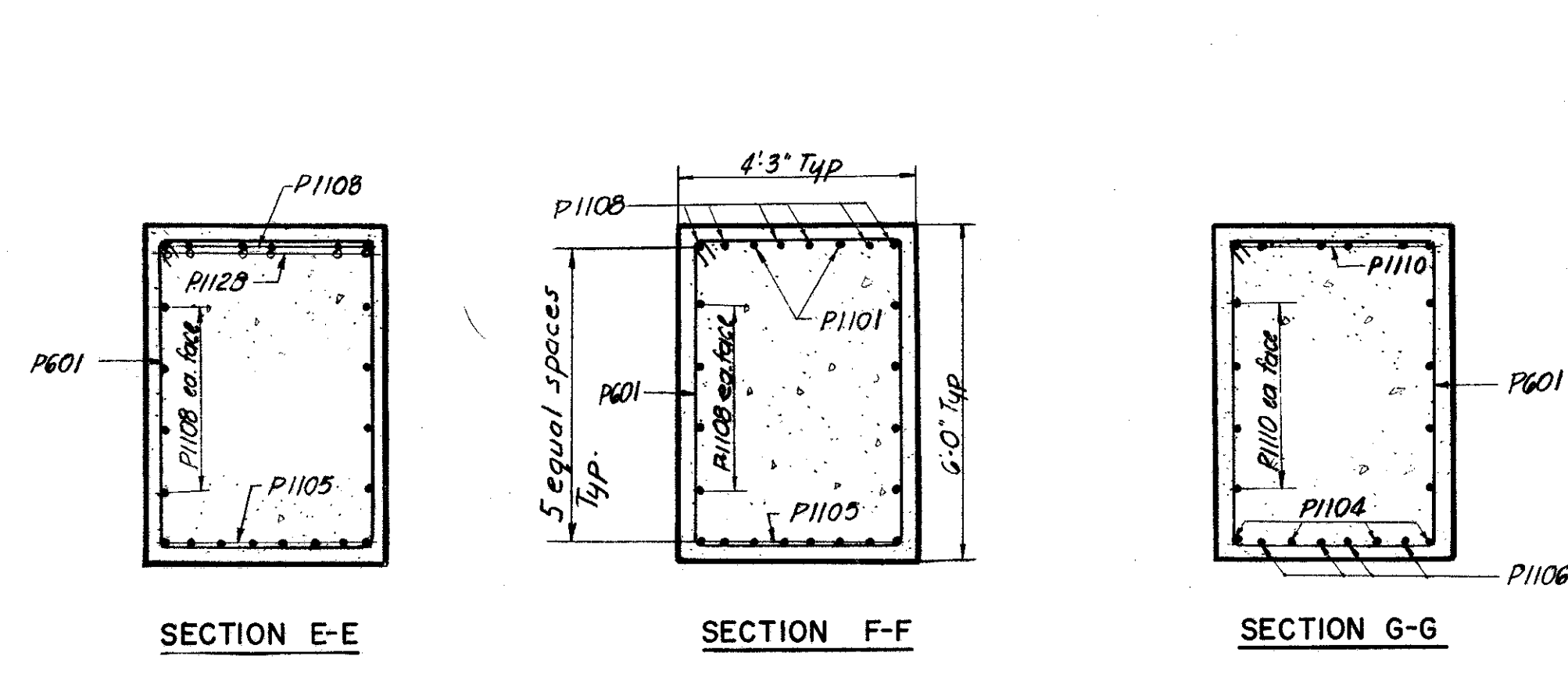
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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-44

**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)**

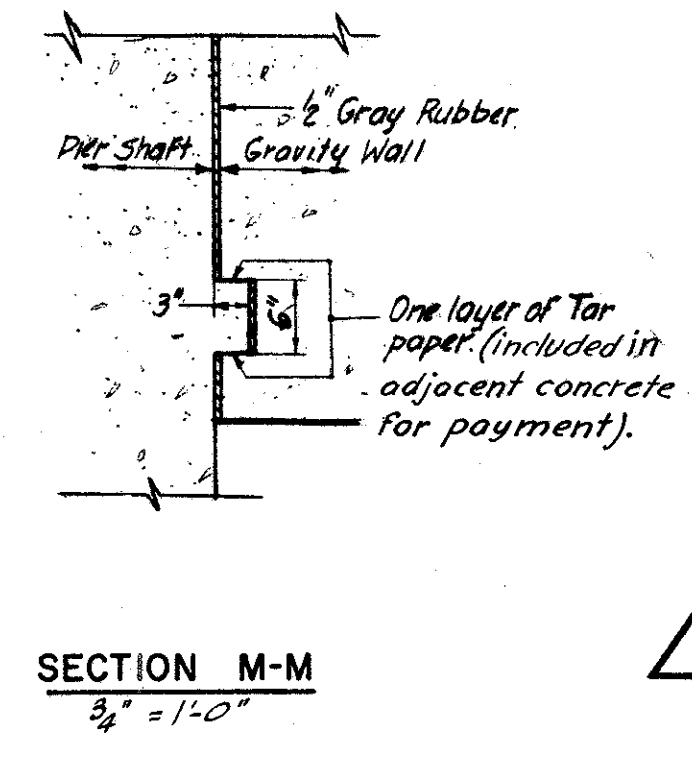


FOOTING PLAN
3/8" = 1'-0"

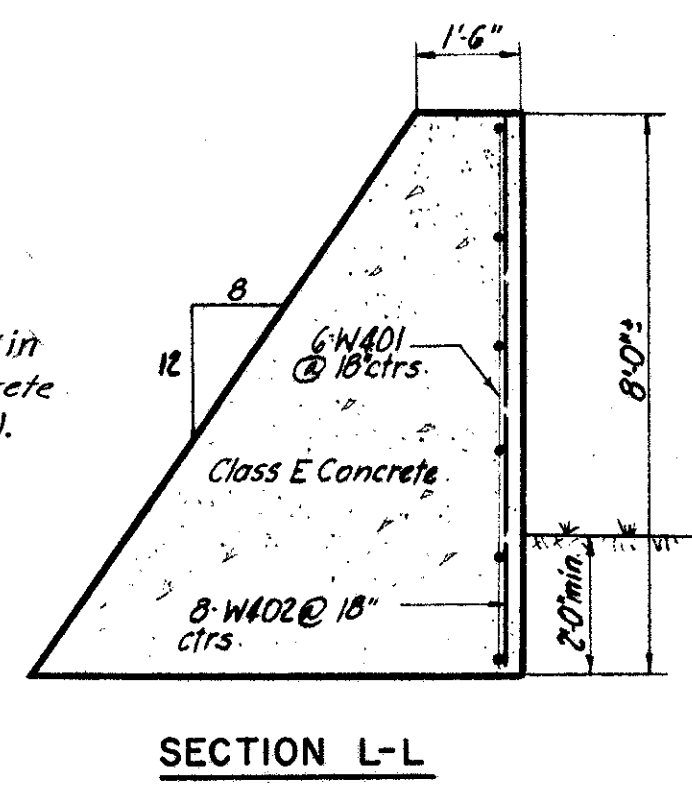
APPROVED
FEB 23 1957



SECTION K-K
3/8" = 1'-0"
Shaft reinforcement not shown



SECTION M-M
3/8" = 1'-0"



SECTION L-L

NOTES:
For location of Section B-B through Section M-M See Sh. 44
75 reinf. C.I.P. Piles, 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 Tons per pile.
For bar bending diagrams See Sh. 43.

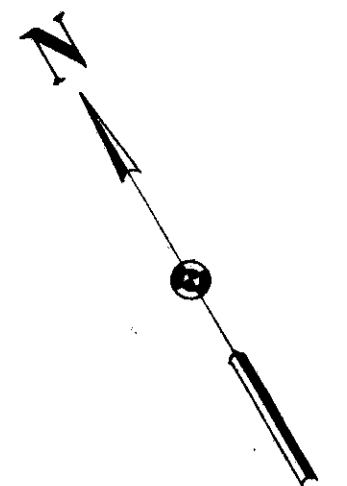
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. MENT	WEIGHT (Lbs.)
				A	B	C	D		
P401	42	4'-1"	105	7"	1'-9"			115	
W401	6	10'-6"	Str.					42	
W402	8	7'-6"	Str.					40	
P501	1 Series 76	17'-3" to 22'-7"	136	3'-3/4"	4'-3/4"	1'-7"	A-0-054 B-0-04	1620	
P502	5 Series 80	18'-3" to 21'-6"	136	4'-2"	4'-3/4"	1'-7"	B-0-04	8100	
P503	1 Series 80	17'-3" to 22'-9"	136	3'-8/10"	4'-3/4"	1'-7"	A-0-054 B-0-04	1669	
P504	112	5'-11"	105	3'-11"	1'-0"			621	
P601	63	19'-10"	109	3'-11"	5'-8"			1877	
P602	4	13'-0"	Str.					78	
P603	192	4'-0"	Str.					1154	
P604	2 Series 76	18'-8" to 19'-7"	104	4'-3/4"	2'-4"		A-0-054	862	
P605	2 Series 76	17'-6" to 18'-4"	104	4'-3/4"	2'-4"		B-0-03	807	
P606	2 Series 76	16'-4" to 17'-2"	104	4'-3/4"	2'-4"		A-0-03	755	
P607	2 Series 76	15'-1" to 16'-0"	104	4'-3/4"	2'-4"		A-0-03	700	
P608	2 Series 76	13'-10" to 14'-10"	104	4'-3/4"	2'-4"		A-0-03	732	
P609	2 Series 76	12'-6" to 13'-6"	104	4'-3/4"	2'-4"		A-0-03	664	
P801	24	43'-10"	101	42'-9"				2809	
P802	12	42'-9"	Str.					1370	
P803	124	16'-10"	100	14'-8"				3573	
P1101	2	35'-3"	Str.					375	
P1102	6	33'-9"	Str.					1076	
P1103	28	35'-6"	Str.					3281	
P1104	4	27'-6"	Str.					584	
P1105	8	41'-3"	Str.					1753	
P1106	4	22'-3"	Str.					473	
P1107	196	9'-10"	104	8'-3"	1'-7"			10,240	
P1108	134	31'-6"	Str.					22,426	
P1109	28	36'-3"	Str.					3,393	
P1110	42	37'-3"	Str.					8,312	
P1111	28	38'-6"	Str.					3,727	
P1112	28	39'-6"	Str.					5,876	
P1113	28	40'-6"	Str.					6,025	
P1114	28	41'-9"	Str.					6,211	
P1115	28	21'-6"	Str.					3161	
P1116	28	20'-0"	Str.					2975	
P1117	28	19'-0"	Str.					2827	
P1118	28	17'-9"	Str.					2641	
P1119	28	16'-6"	Str.					2455	
P1120	28	15'-3"	Str.					2269	
P1121	28	14'-0"	Str.					2083	
P1122	4	11'-0"	Str.					234	
P1123	4	27'-0"	Str.					574	
P1124	4	42'-6"	Str.					903	
P1125	18	21'-6"	Str.					2,056	
P1126	10	24'-6"	Str.					1,302	
P1127	14	36'-6"	Str.					2,715	
P1128	6	16'-5"	125	3/32	9'-3"	8'-0"	2'-0"	523	
P1129	6	16'-5"	125	1/32	9'-3"	8'-0"	2'-0"	523	
								Total 126,739	

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-1750
PIER 1B DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0" unless noted
MADE C.M. DATE 1-13-57
TRCD N.R.S. DATE 2-12-57
CKD H.H.G. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-45

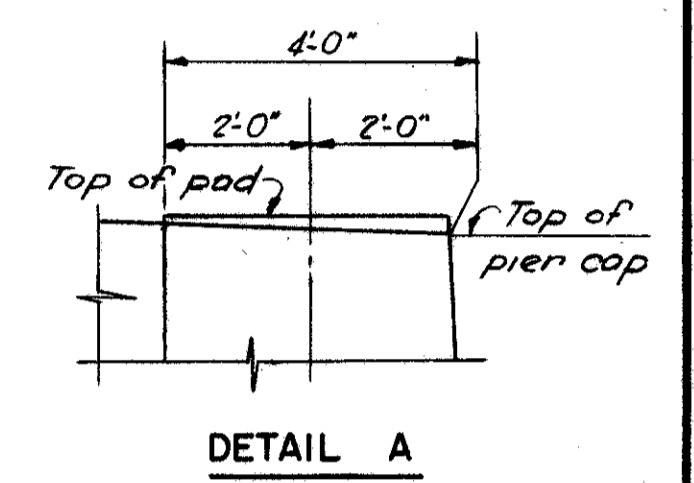
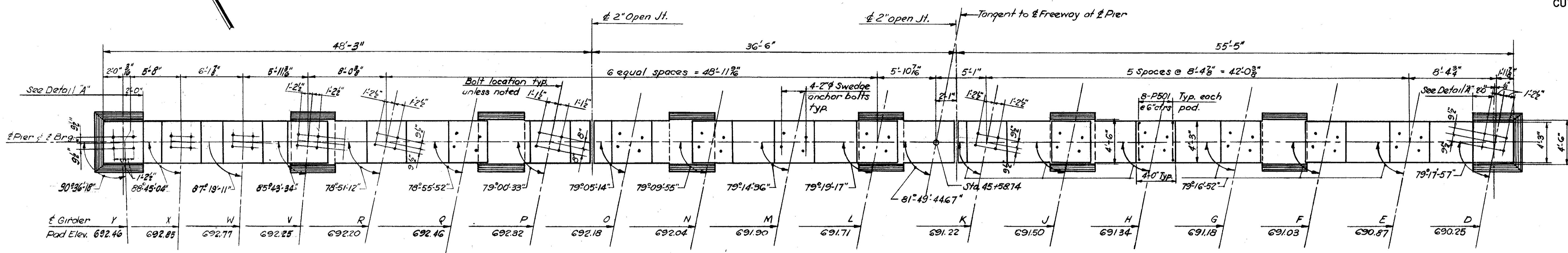
UNION PLASTER
FEB 23 1957



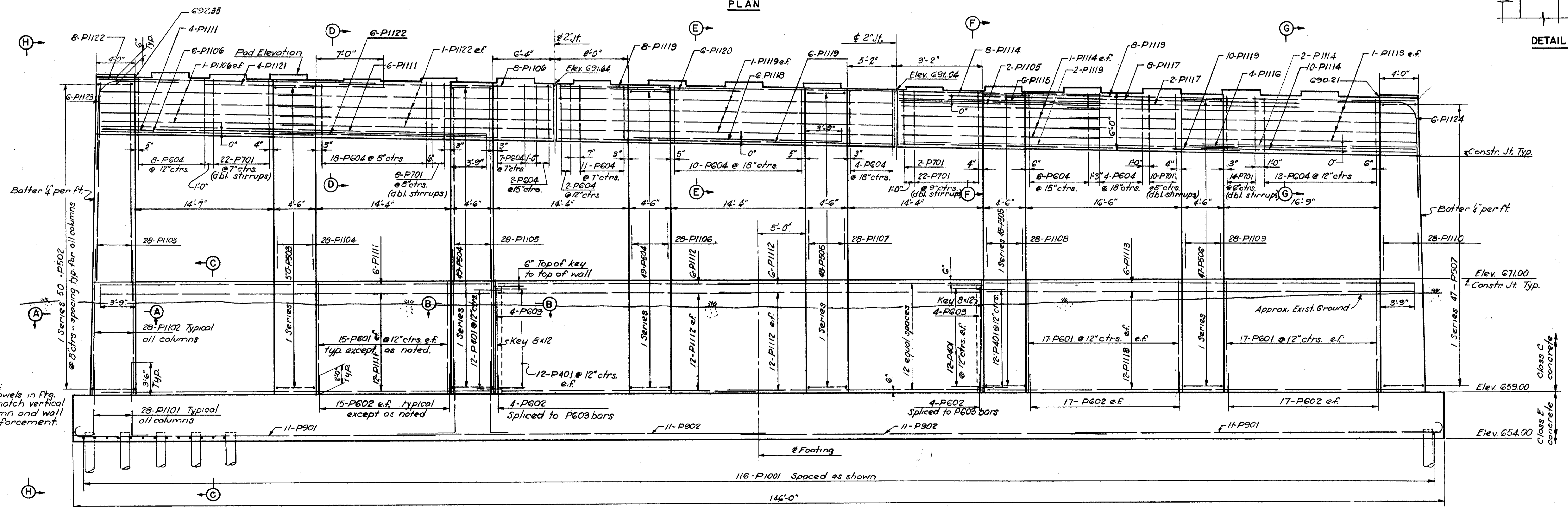
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

46
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



PLAN



ELEVATION

Note:
Dowels in ftg. to match vertical column and wall reinforcement.

NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoes and anchor bolts see Sh. 30.
For drainage details see Sh. 108 & 109.
For reinforcing steel schedule see Sh. 47.
For Sections A-A through H-H, see Sh. 47.
e.f. denotes each face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 2B

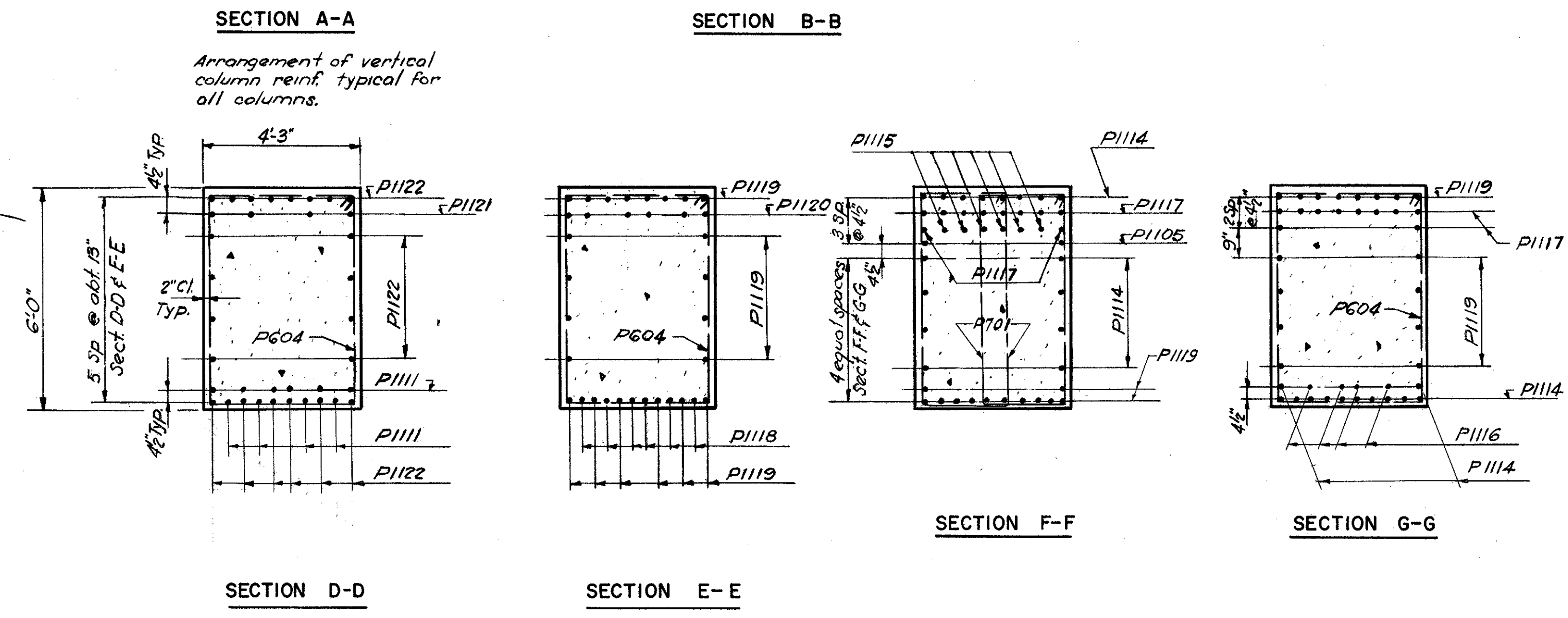
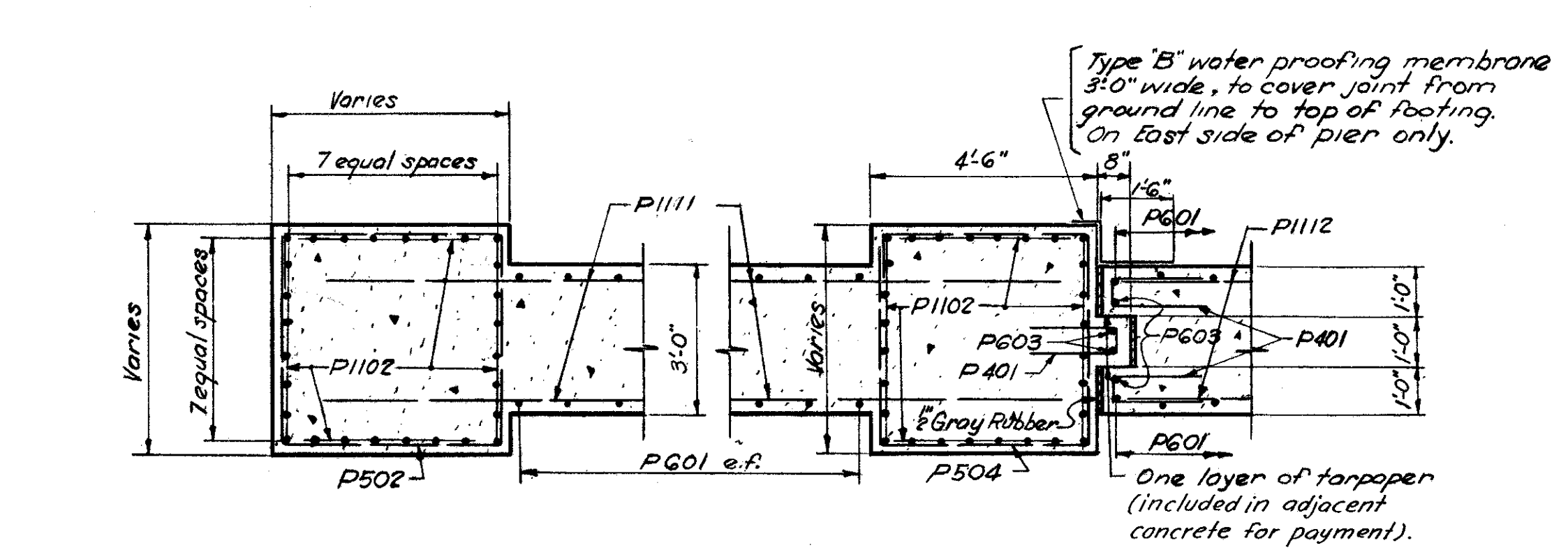
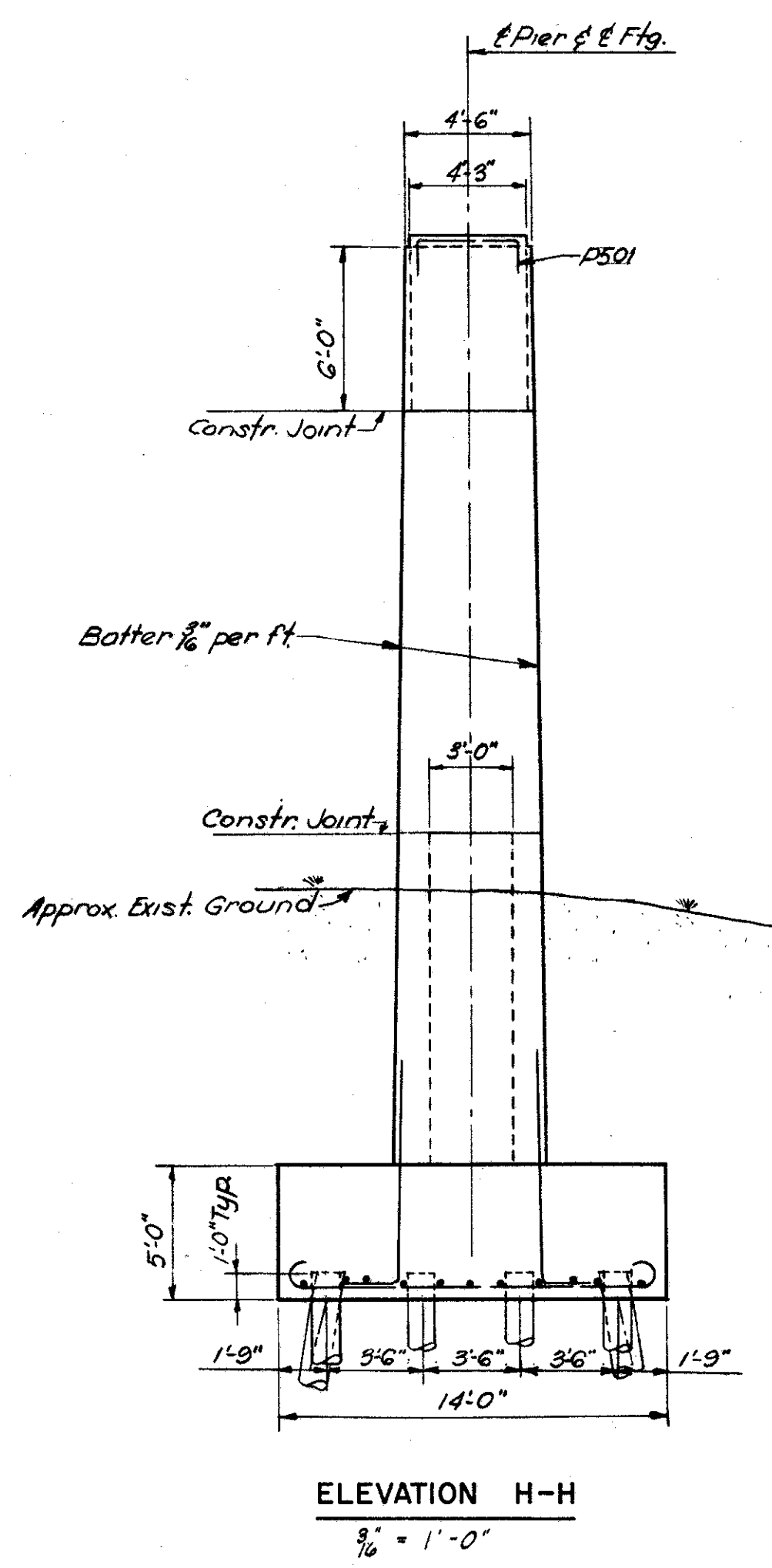
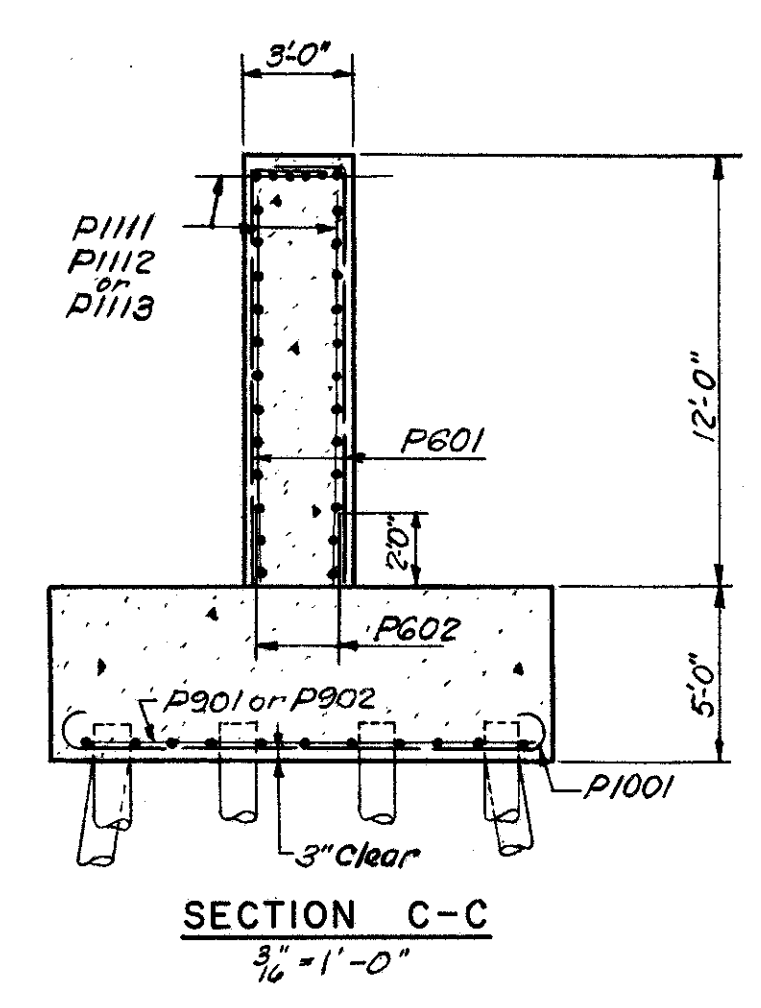
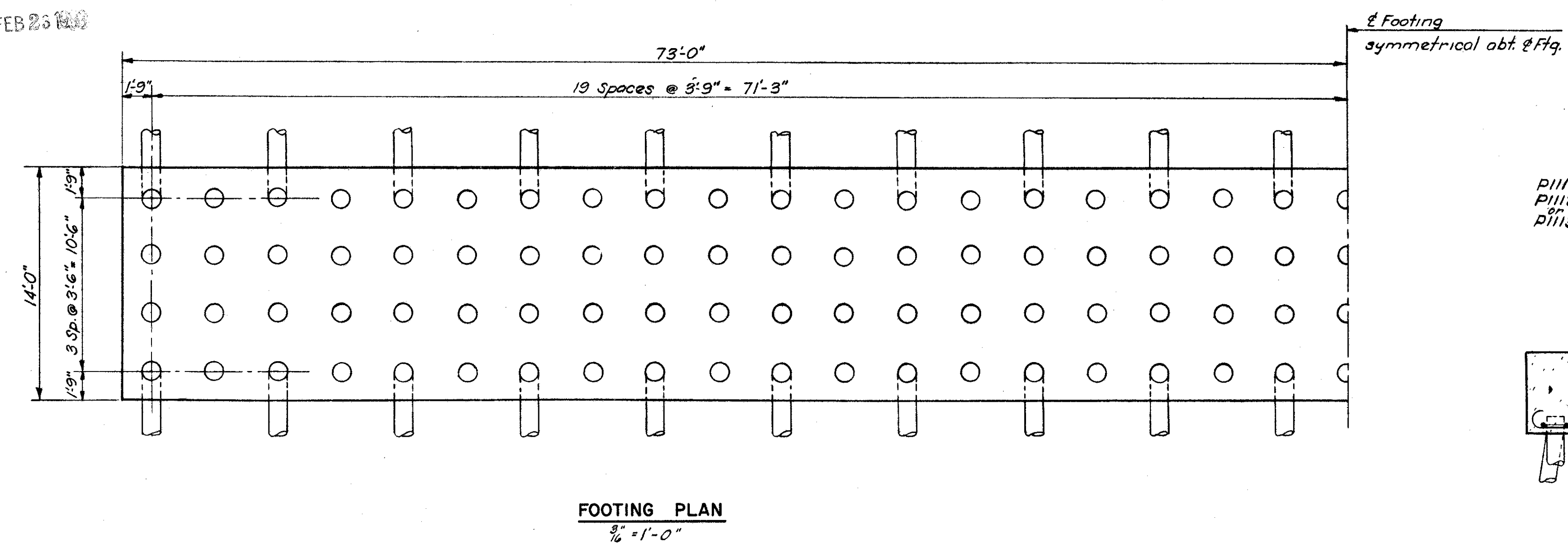
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 3/8" = 1'-0"
MADE I.M.J. DATE 1-1-57
TRCD Z.G. DATE 2-11-57
CRD H.H.C. DATE 3-30-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-46

RECORDED
FEB 23 1957

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)
				A	B	C	D		
P401	72	4'-1"	105	7"	1'-9"				196
P501	144	6'-5"	105	3'-11"	1'-3"				964
P502	Series 50	17'-3" to 20'-8"	136	3'-8" to 4'-4"	4'-2" to 5'-2"	1'-7"		4'-5/8" to 4'-3/4"	989
P503	Series 50	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		8'-2"	1004
P504	Series 49	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		8'-2"	1968
P505	Series 48	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		8'-2"	1921
P506	Series 47	18'-3" to 20'-2"	136	4'-2"	4'-2" to 5'-1 1/2"	1'-7"		8'-2"	942
P507	Series 47	17'-3" to 20'-6"	136	3'-8" to 4'-3 1/2"	4'-2" to 5'-1 1/2"	1'-7"		7'-5/8" to 8'-1/4"	925
P601	218	14'-2"	104	2'-4"	11'-10"				4639
P602	226	4'-0"	Str.						1358
P603	8	11'-3"	Str.						135
P604	85	19'-10"	109	3'-11"	5'-8"				2532
P701	78	16'-10"	109	2'-4"	5'-8"				2684
P901	22	39'-2"	101	37'-11"					2930
P902	22	39'-2"	Str.						2930
P1001	116	16'-6"	100	13'-8"					8236
P1101	224	9'-10"	104	8'-3"	1'-7"				11703
P1102	224	15'-6"	Str.						18447
P1103	28	21'-0"	Str.						3124
P1104	28	20'-9"	Str.						3087
P1105	30	20'-6"	Str.						3267
P1106	50	20'-0"	Str.						5913
P1107	28	18'-9"	Str.						2938
P1108	28	18'-6"	Str.						2901
P1109	28	19'-3"	Str.						2864
P1110	28	18'-9"	Str.						2769
P1111	40	41'-0"	Str.						8713
P1112	60	27'-9"	Str.						8846
P1113	30	45'-3"	Str.						7212
P1114	28	22'-6"	Str.						3347
P1115	6	21'-6"	Str.						685
P1116	4	24'-8"	Str.						515
P1117	10	42'-6"	Str.						2258
P1118	6	22'-0"	Str.						701
P1119	50	36'-0"	Str.						9563
P1120	6	19'-9"	Str.						630
P1121	4	18'-6"	Str.						393
P1122	22	31'-3"	Str.						3653
P1123	6	16'-5"	125	0	9'-3"	8'-0"	2'-0"		323
P1124	6	16'-6"	125	7/16	9'-3"	8'-0"	2'-0"		526
									Total 138,357

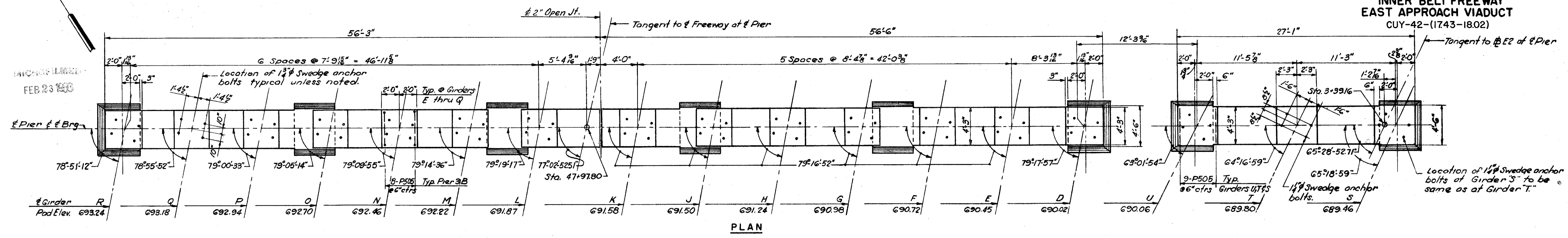
NOTES:
For location of Sections A-A through H-H, see Sh. 46.
156 Reinf. C.I.R. Piles, 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sh. 48.
For bar bending diagrams see Sh. 48.

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-17.50
PIER 2B DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

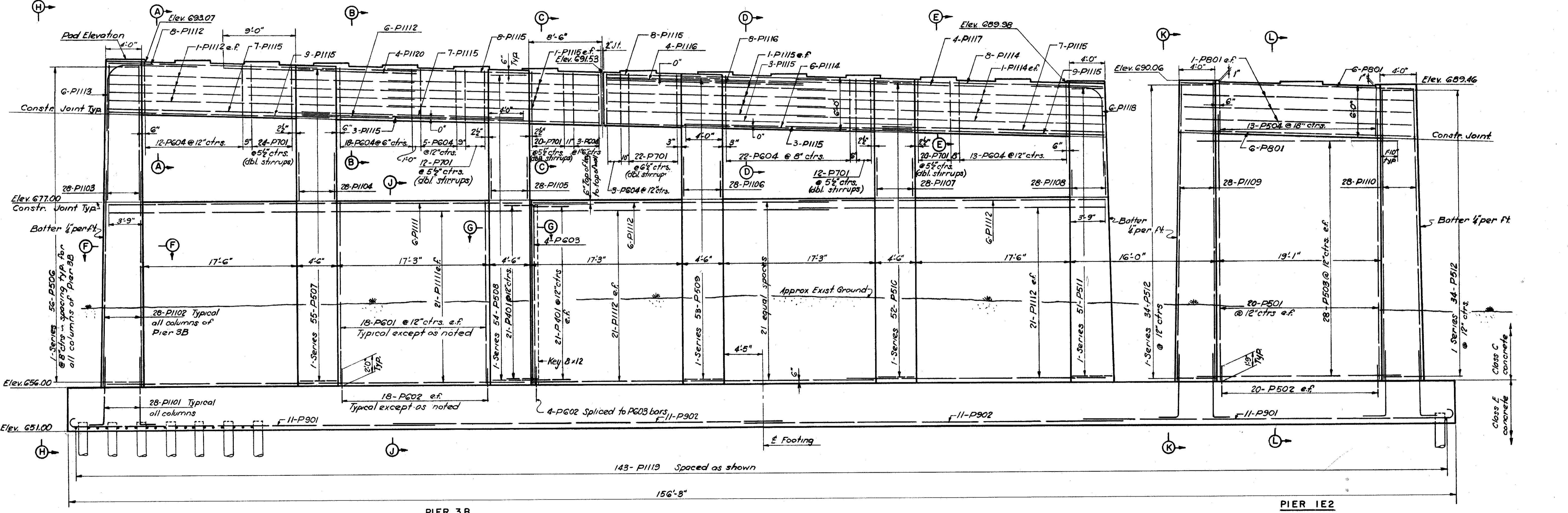
SCALE: 3/16" = 1'-0" unless noted
MADE: J.M.J. DATE: 1-8-57
TRCD: H.H.C. DATE: 2-15-57
CKD: H.H.C. DATE: 2-20-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-47

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-1802)



PLAN



ELEVATION

Note:
Dowels in Fig. to match vertical column and wall reinforcement.

NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoe and anchor bolts see Sh. 59.
For drainage details see Sh. 108 & 109.
For Section A-A through Section L-L see Sh. 49.
For bar list, see Sh. 48.
(e.f.) denotes each face.

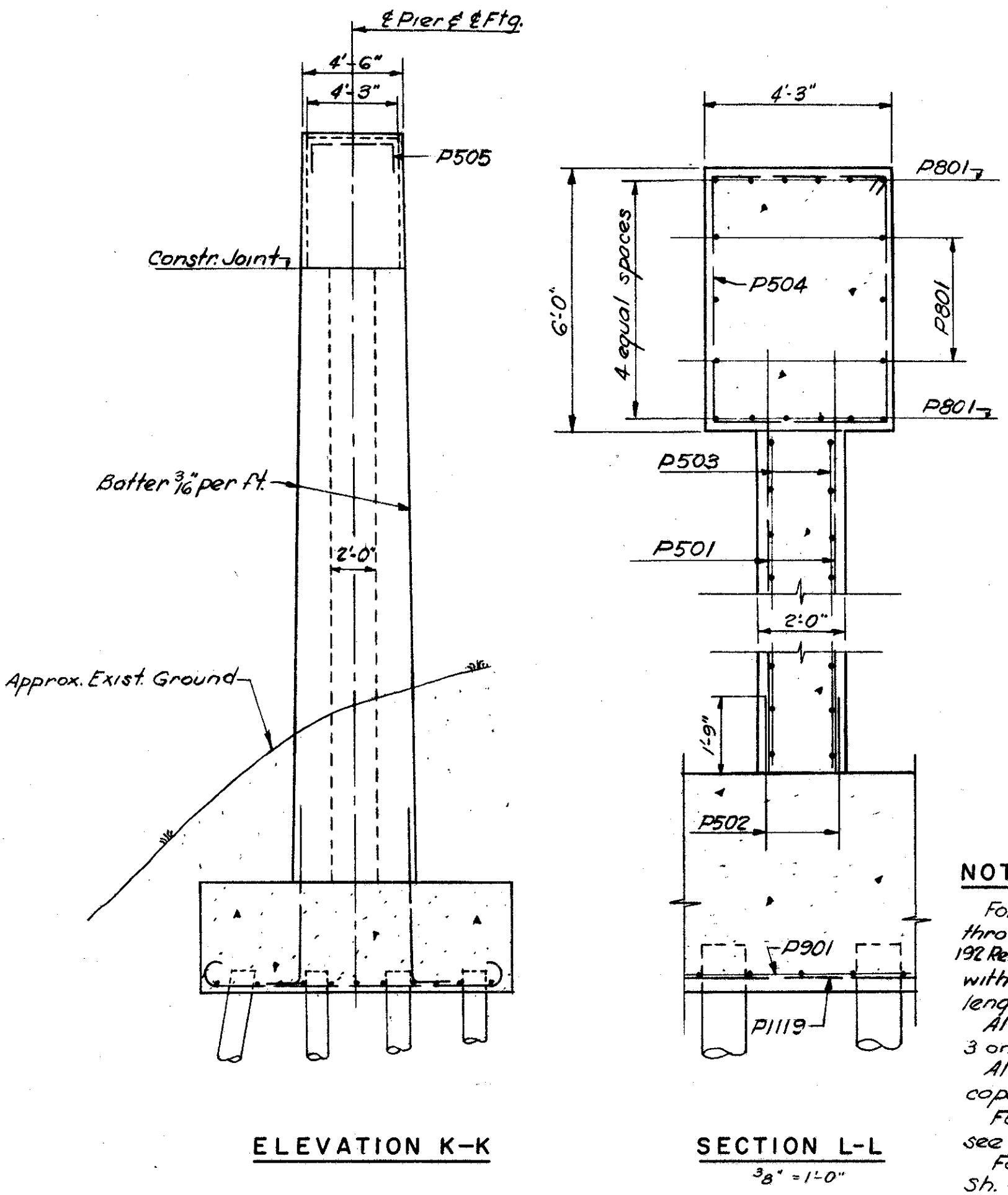
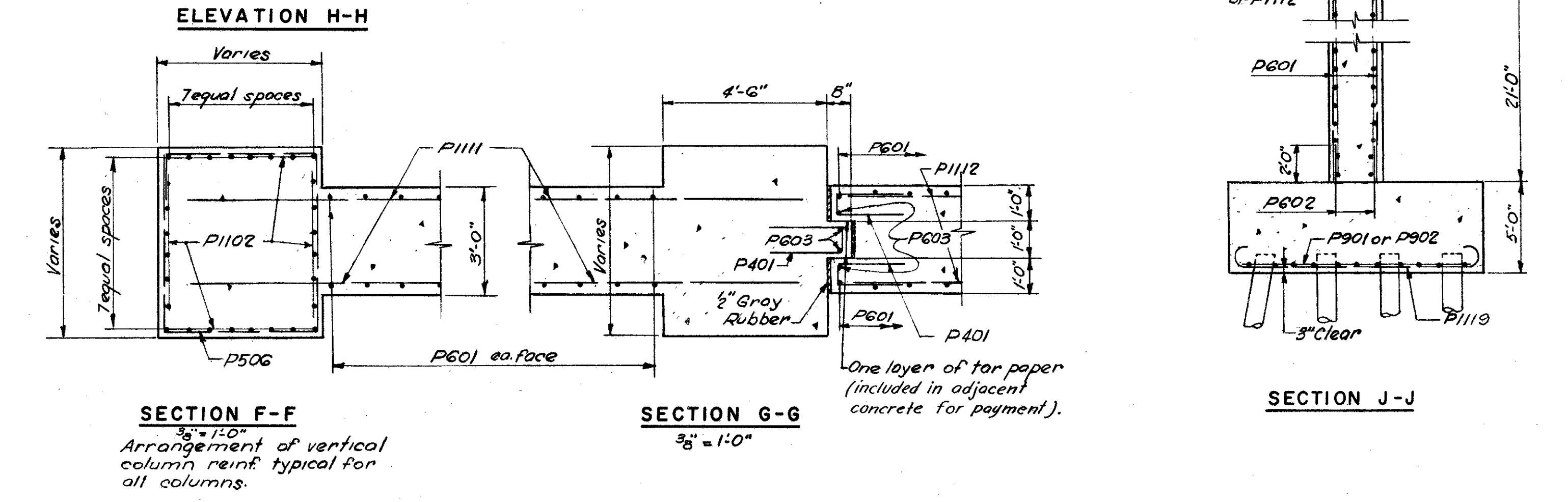
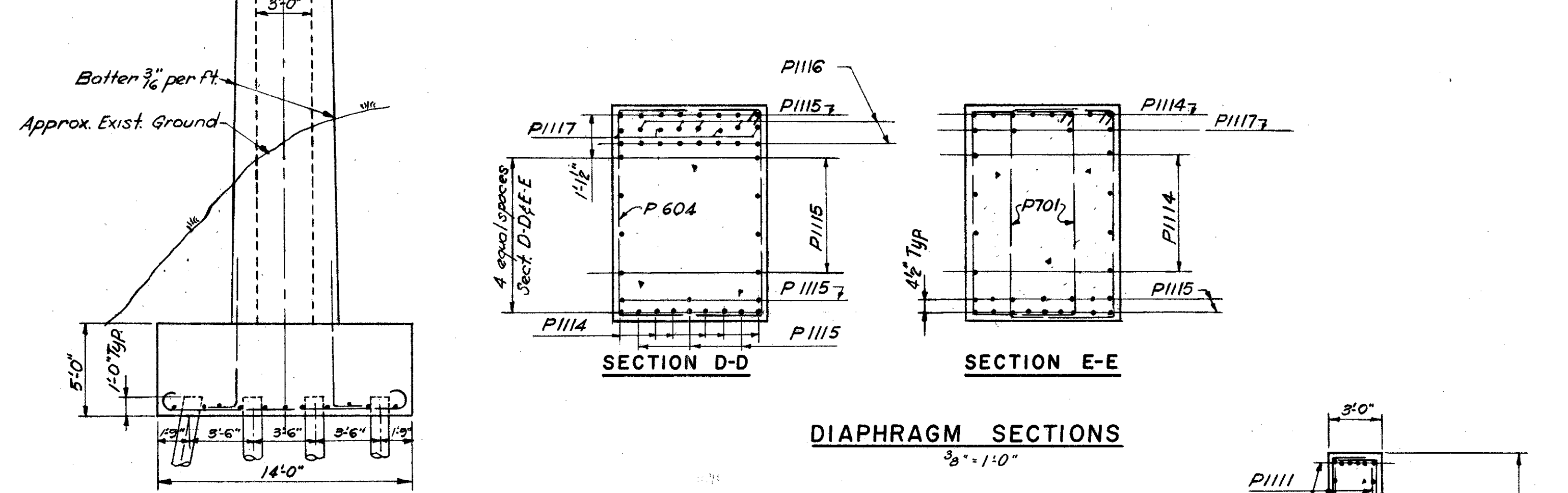
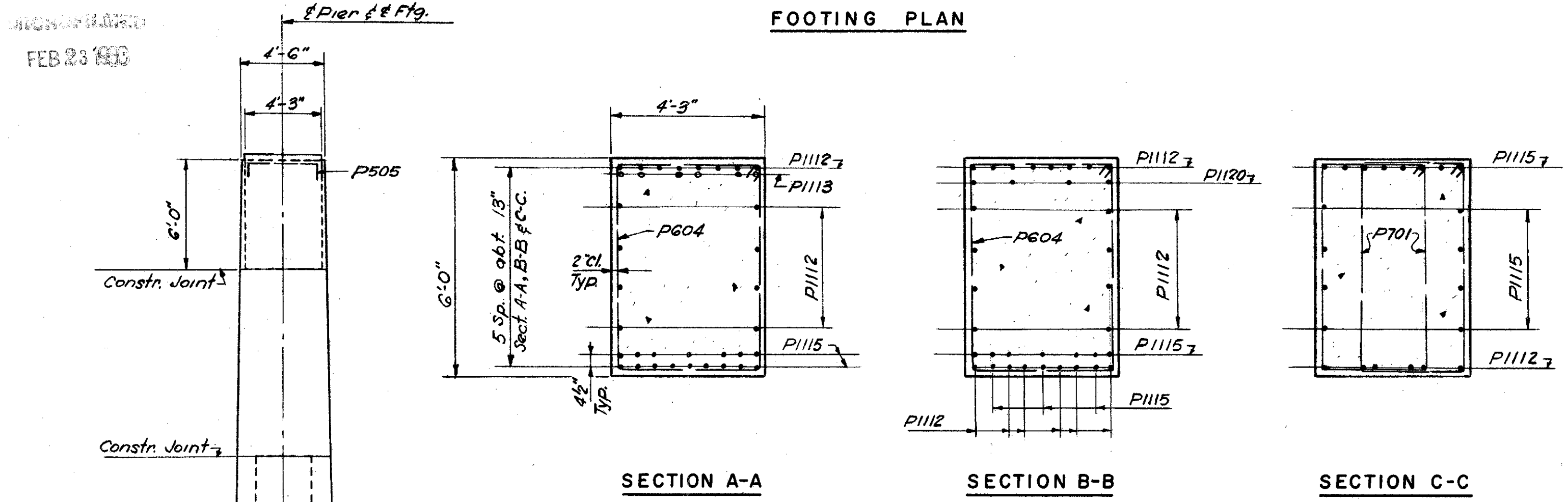
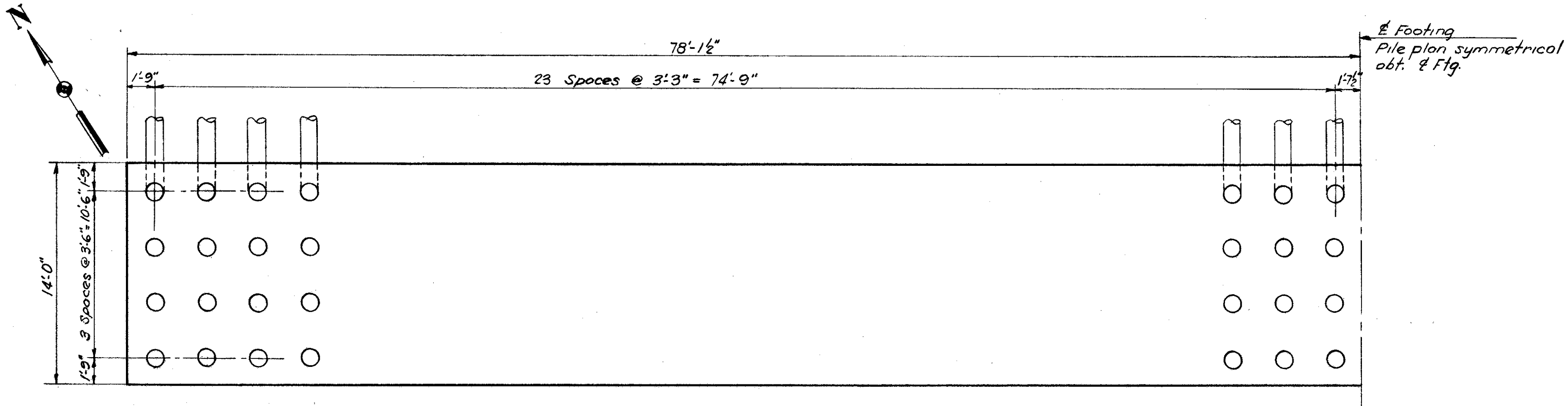
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
PIER 3B & IE2
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 3/8" = 1'-0"
MADE I.M.L. DATE 1-16-57
TRCD N.E.K. DATE 2-14-57
CHK. H.N.C. DATE 2-13-57

HOWARD, NEEDLES, TAMMEN & BERGENS
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-48

**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)**

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCRE-MENT	WEIGHT (Lbs.)
				A	B	C	D		
P401	63	4'-1"	105	7"	1'-9"				172
P501	40	29'-6"	Str.						1231
P502	40	3'-6"	Str.						146
P503	56	22'-9"	Str.						1329
P504	13	19'-10"	109	3'-11"	5'-8"				269
P505	139	5'-11"	105	3'-11"	1'-0"				858
P506	1 Series 56	17'-3" to 21'-1"	136	3'-8" to 4'-3 1/2"	4'-2" to 5'-3 1/2"	1'-7"		4'-1 1/2" to 4'-1 1/2"	1119
P507	1 Series 55	18'-3" to 20'-6"	136	4'-2"	4'-2" to 5'-3 1/2"	1'-7"		8'-1/2"	1111
P508	1 Series 54	18'-3" to 20'-5"	136	4'-2"	4'-2" to 5'-8"	1'-7"		8'-1/2"	1089
P509	1 Series 53	18'-3" to 20'-5"	136	4'-2"	4'-2" to 5'-3"	1'-7"		8'-1/2"	1069
P510	1 Series 52	18'-3" to 20'-4"	136	4'-2"	4'-2" to 5'-2 1/2"	1'-7"		8'-1/2"	1046
P511	1 Series 51	17'-3" to 20'-3"	136	3'-8" to 4'-4 1/2"	4'-2" to 5'-2 1/2"	1'-7"		4'-1 1/2" to 4'-1 1/2"	1011
P512	2 Series 34	17'-3" to 20'-8"	136	3'-8" to 4'-4 1/2"	4'-2" to 5'-2 1/2"	1'-7"		4'-1 1/2" to 4'-1 1/2"	1345
P601	180	29'-2"	104	2'-4"	20'-10"				6263
P602	184	4'-0"	Str.						1105
P603	4	20'-3"	Str.						122
P604	76	19'-10"	109	3'-11"	5'-8"				2264
P701	110	18'-0"	109	2'-11"	5'-8"				4047
P801	18	26'-9"	Str.						1286
P901	22	41'-9"	101	40'-6"					3123
P902	22	41'-9"	Str.						3128
P1101	224	9'-10"	104	8'-3"	1'-7"				11703
P1102	168	24'-6"	Str.						21868
P1103	28	15'-9"	Str.						2343
P1104	28	15'-3"	Str.						2269
P1105	28	14'-6"	Str.						2157
P1106	28	13'-9"	Str.						2046
P1107	28	13'-3"	Str.						1971
P1108	28	12'-6"	Str.						1860
P1109	28	33'-9"	Str.						5021
P1110	28	33'-3"	Str.						4946
P1111	48	46'-9"	Str.						11922
P1112	118	34'-0"	Str.						21316
P1113	6	16'-5"	124	8	9'-3"	8'-0"	2'-0"		523
P1114	22	34'-3"	Str.						4003
P1115	80	25'-3"	Str.						10732
P1116	12	22'-0"	Str.						1403
P1117	4	43'-9"	Str.						930
P1118	6	16'-6"	125	5/8	9'-3"	8'-0"	2'-0"		526
P1119	143	16'-10"	100	13'-8"					12789
P1120	4	22'-6"	Str.						478
Total									153,934



NOTES:
 For location of Sections A-A through L-L, see Sh. 43.
 192 Reinf. C.A.R. Piles, 14" Diam. req'd with an estimated average vertical length of 60 feet.
 All battered piles shall be battered 3 on 12.
 All piles shall be driven to a capacity of 50 tons per pile.
 For replacement steel schedule see Sh. 43.
 For bar bending diagrams see Sh. 43.

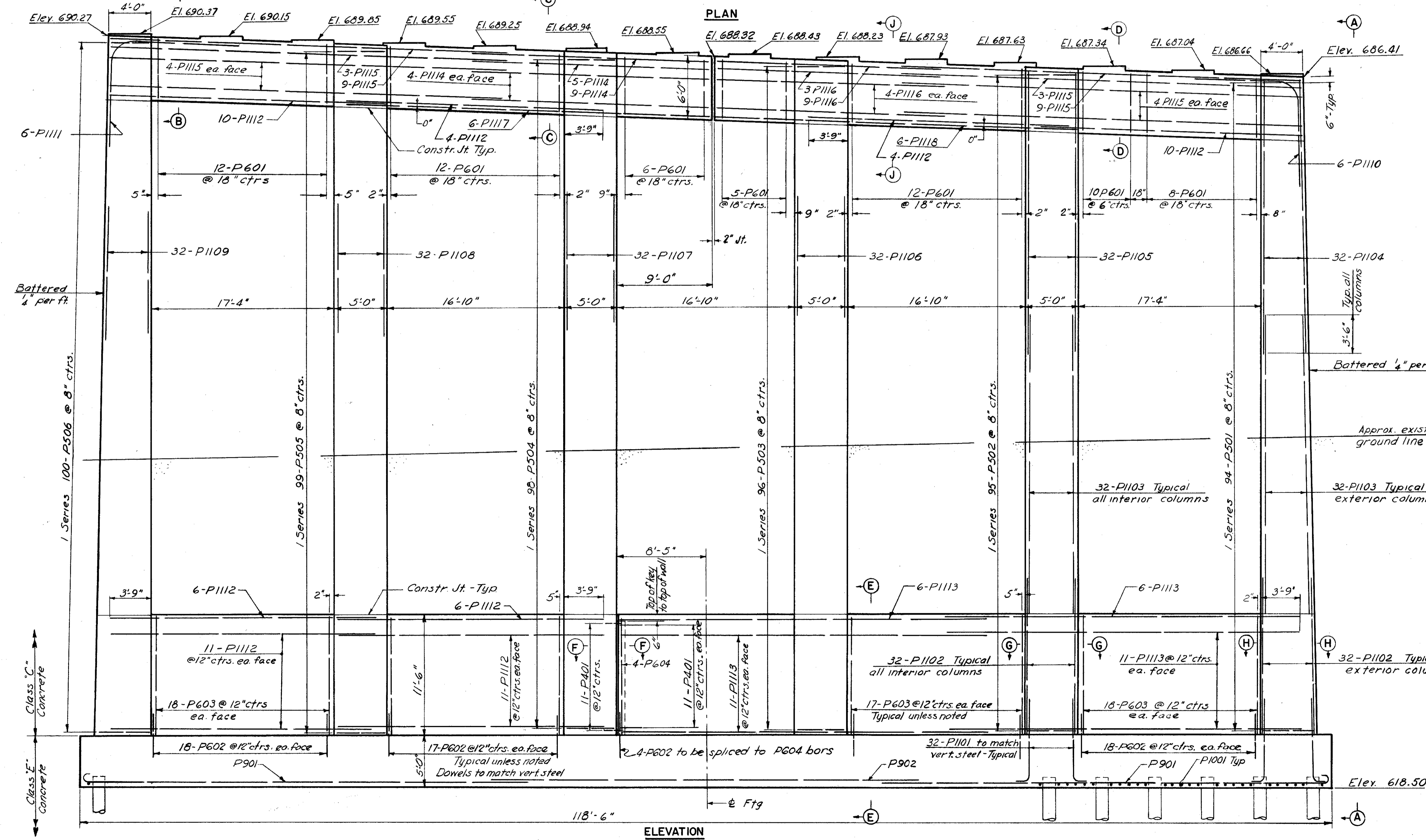
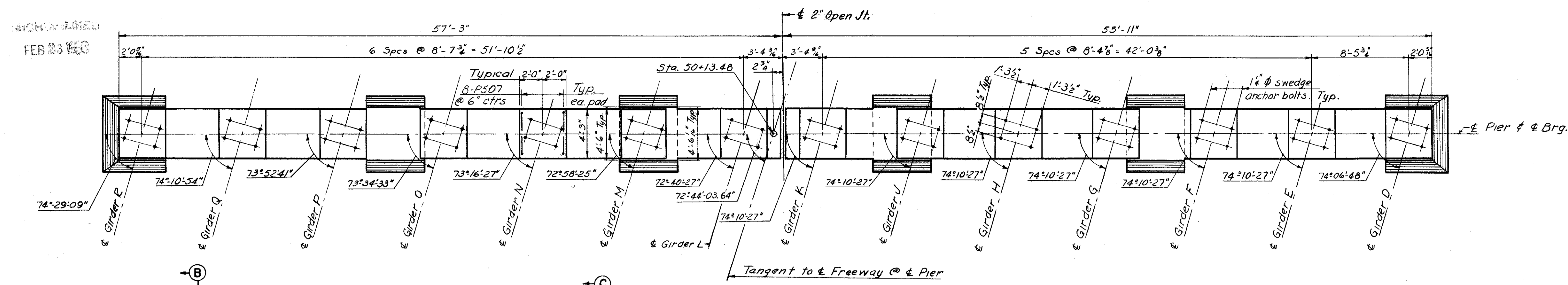
**U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
PIER 3B & 1E2 DETAILS**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0" unless noted
 MADE I.M.M. DATE 1-18-56
 TRCD H.K.G. DATE 2-13-57
 CKD H.H.C. DATE 2-13-57

HOWARD, NEEDLES & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-49

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoe and anchor bolts see Sheet 89.
For drainage details see Sheet 108 & 109.
For reinforcing steel schedule see Sheet 51.
For sections A-A through J-J see Sheet 51.

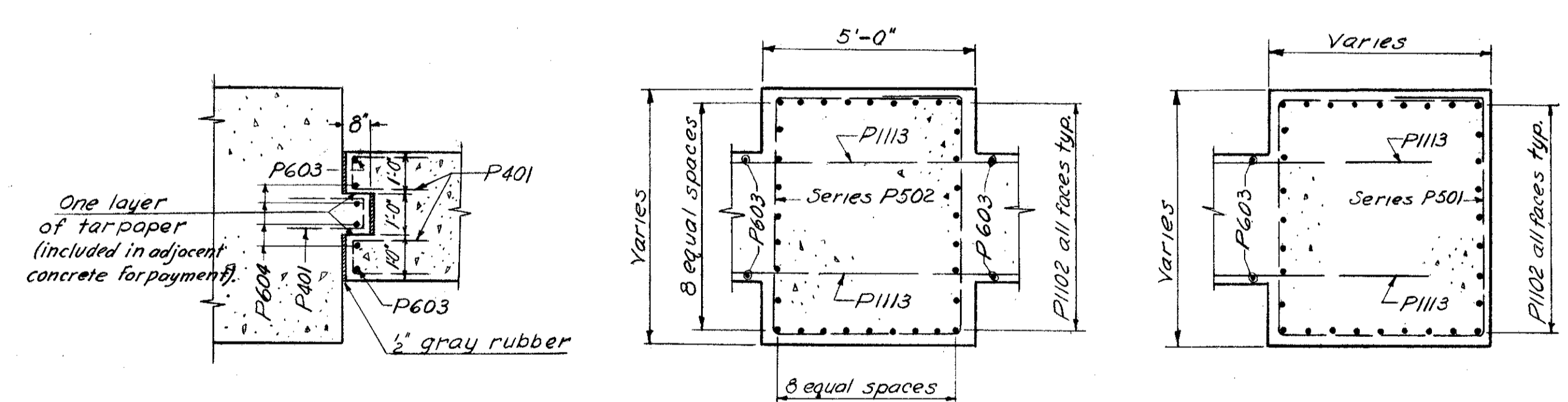
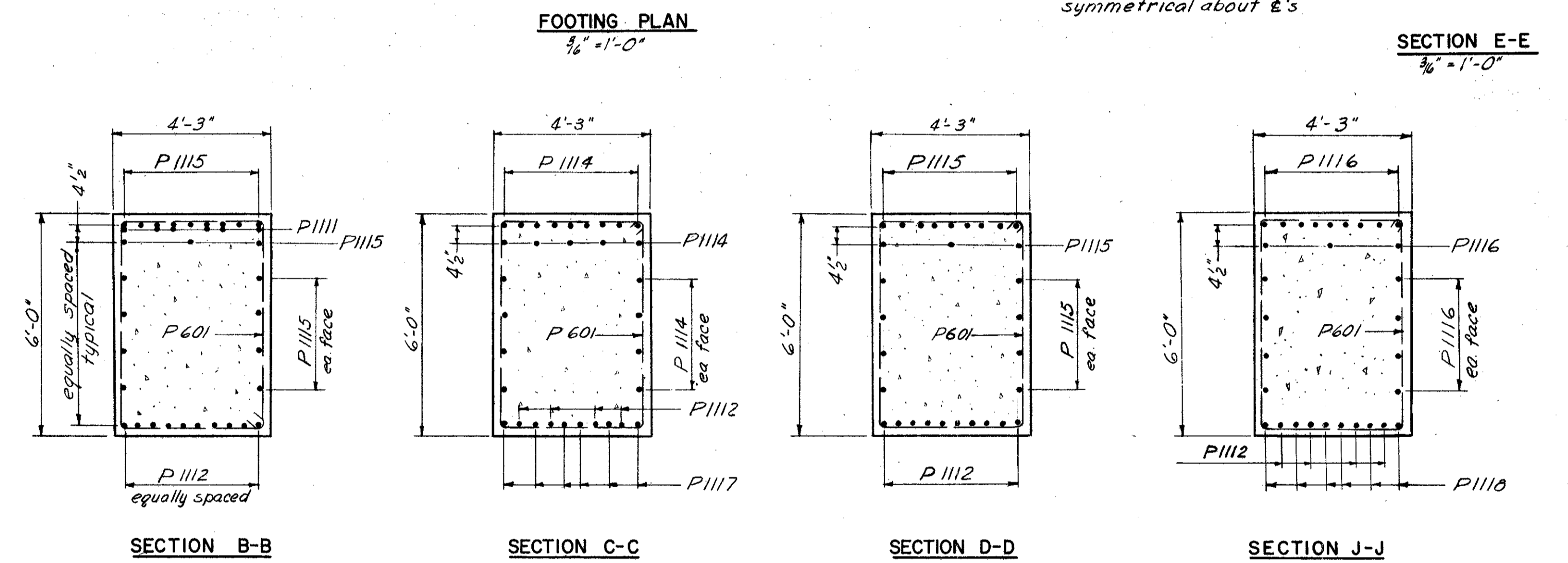
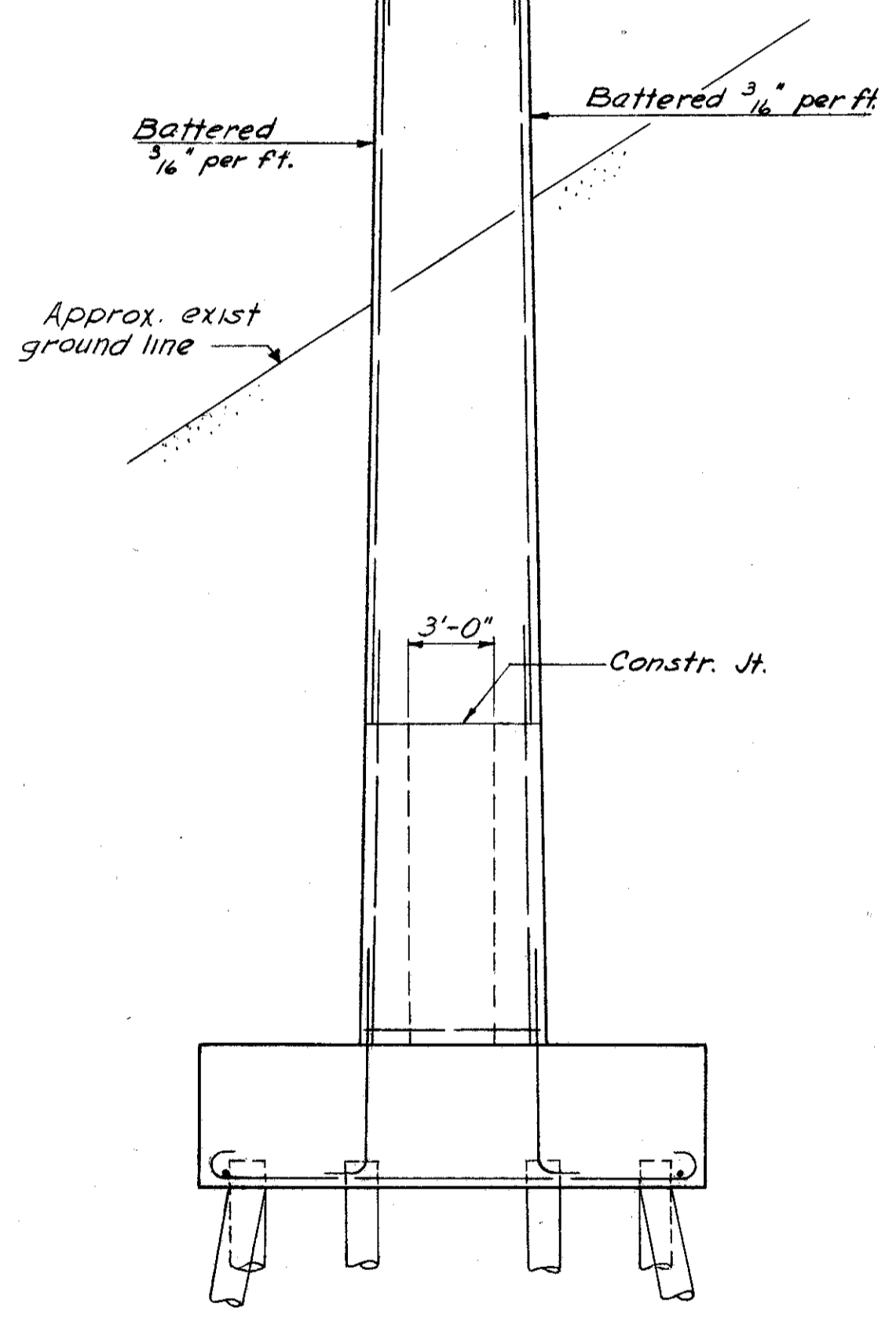
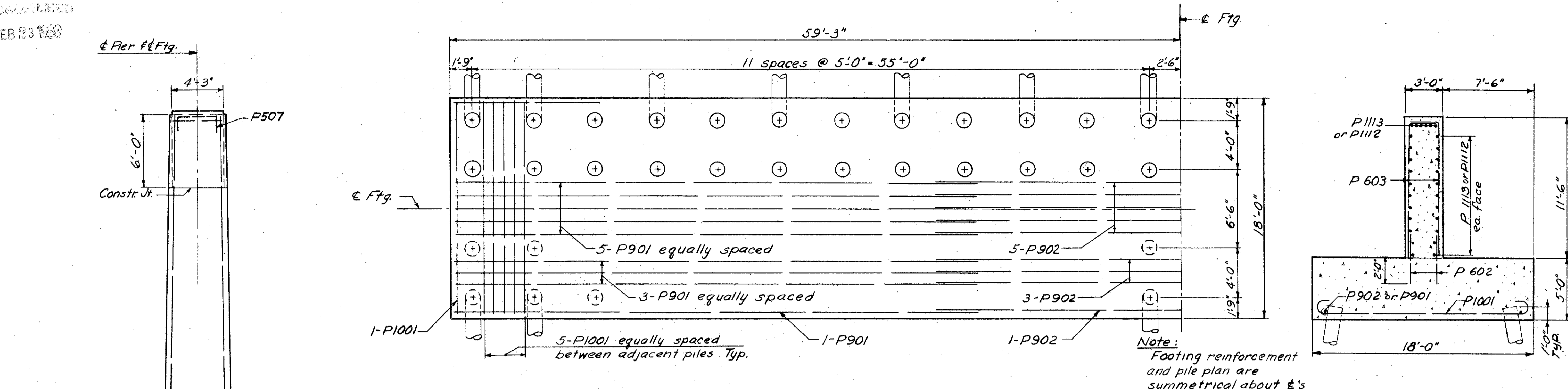
U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-17.50
PIER 4B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 3/16" = 1'-0"
MADE BLS DATE 1-17-57
TRCD JMS DATE 2-14-57
CKD JMS DATE 2-14-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-50

REVISED
FEB 23 1957

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR-MENT	WEIGHT (Lbs.)
				A	B	C	D		
P401	33	4'-1"	105	0'-7"	1'-9"			90	
P501	1 Series 94	17'-3" to 23'-9"	136	4'-2" to 4'-2 1/2"	3'-8" to 4'-11 3/4"	1'-7"		2010	
P502	1 Series 95	19'-3" to 23'-3"	136	4'-2" to 4'-2 1/2"	4'-8"	1'-7"		2106	
P503	1 Series 96	19'-3" to 23'-3"	136	4'-2" to 4'-2 1/2"	4'-8"	1'-7"		2128	
P504	1 Series 98	19'-3" to 23'-4"	136	4'-2" to 4'-2 1/2"	4'-8"	1'-7"		2176	
P505	1 Series 99	19'-3" to 23'-4"	136	4'-2" to 4'-2 1/2"	4'-8"	1'-7"		2198	
P506	1 Series 100	17'-3" to 24'-2"	136	4'-2" to 4'-2 1/2"	3'-8" to 5'-0"	1'-7"		2160	
P507	112	6'-5"	105	3'-11"	1'-3"			750	
P601	65	19'-10"	109	3'-11"	5'-8"			1936	
P602	178	4'-0"	Str.					1069	
P603	174	13'-8"	104	2'-4"	11'-4"			3572	
P604	4	10'-6"	Str.					63	
P901	86	43'-3"	101	42'-0"				3823	
P902	13	40'-0"	Str.					1768	
P1001	117	20'-6"	100	17'-8"				10321	
P1101	192	9'-5"	104	8'-3"	1'-2"			9606	
P1102	192	15'-0"	Str.					15301	
P1103	192	28'-6"	Str.					29073	
P1104	32	26'-0"	Str.					4420	
P1105	32	26'-9"	Str.					4548	
P1106	32	27'-6"	Str.					4675	
P1107	32	26'-3"	Str.					4803	
P1108	32	29'-0"	Str.					4930	
P1109	32	29'-9"	Str.					5058	
P1110	6	16'-6"	125	11/16	9'-3"	8'-0"	2'-0"	526	
P1111	6	16'-5"	124	3/16	9'-3"	8'-0"	2'-0"	523	
P1112	84	25'-3"	Str.					11269	
P1113	56	34'-3"	Str.					10190	
P1114	22	22'-9"	Str.					2659	
P1115	40	37'-9"	Str.					8023	
P1116	20	21'-3"	Str.					2258	
P1117	6	35'-3"	Str.					1124	
P1118	6	34'-0"	Str.					1084	
Total								156,240	

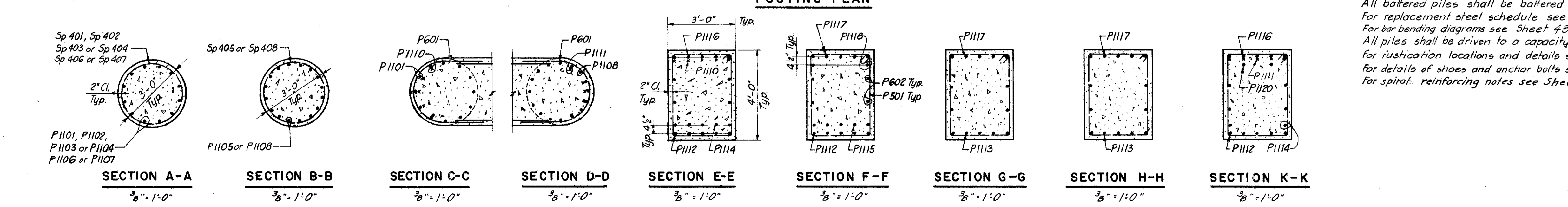
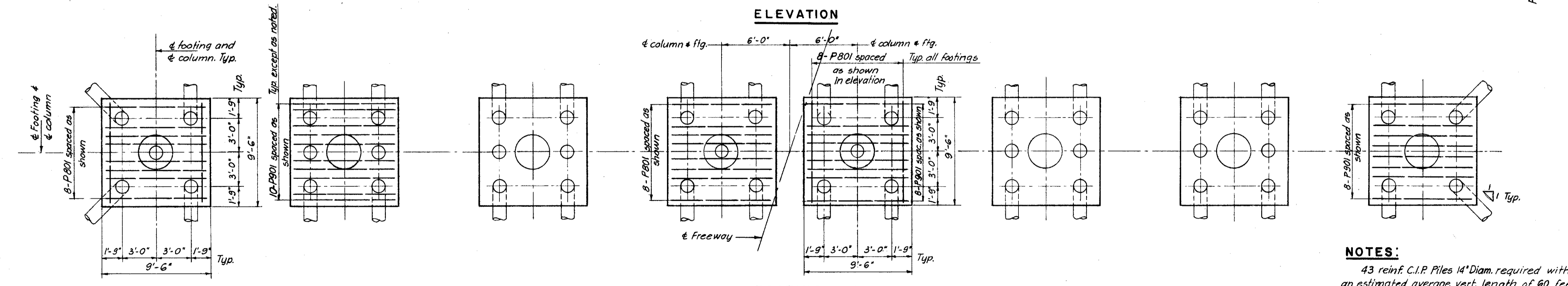
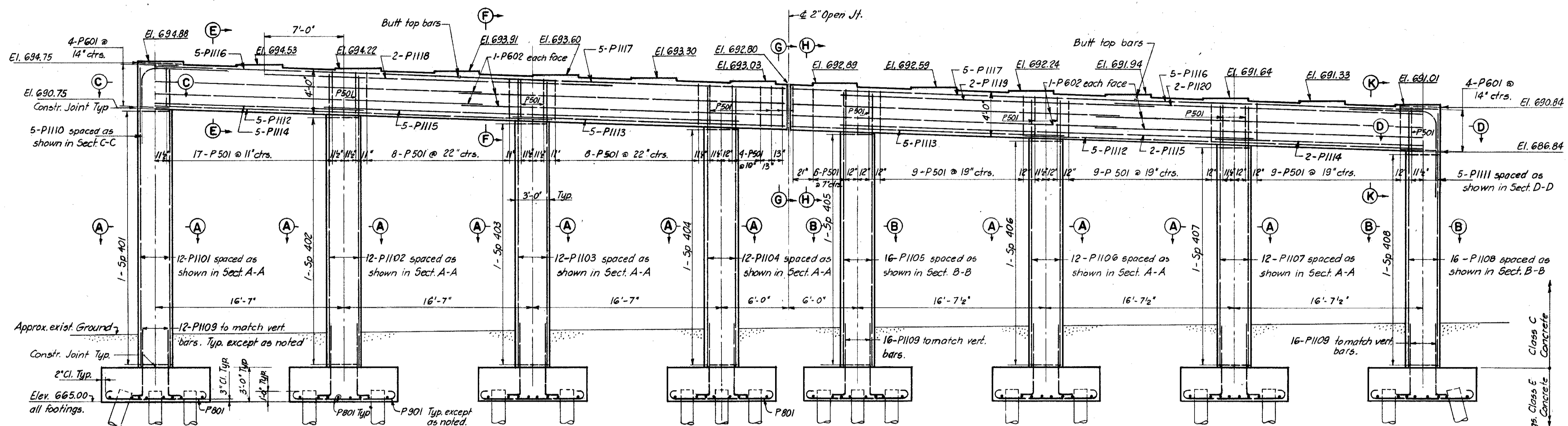
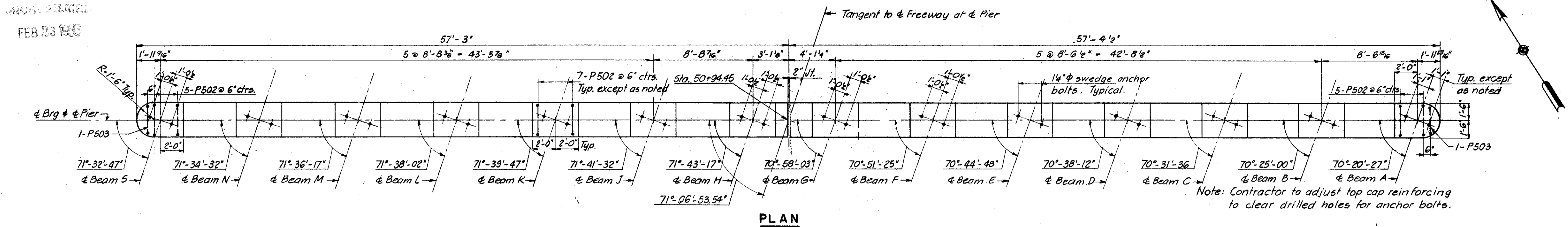
NOTES:
96 Reinf. CIP Piles - 14" dia. with an estimated average vert. length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For bar bending diagrams, see Sheet 43.
For replacement steel schedule, see Sheet 43.
For location of sections A-A through J-J, see Sheet 50.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
PIER 4B DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE 3/8"=1'-0" unless noted
MADE B.L.S. DATE 1-18-57
TRCD A.R.K. DATE 2-19-57
CKD Z.M.J. DATE 2-14-57
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-51

FEB 23 1956

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	52
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



REINFORCEMENT SCHEDULE							SERIES INCR. (Lbs.)	WEIGHT (Lbs.)
MARK	NO.	LENGTH	TYPE	DIMENSIONS				
P501	83	13'-2"	109	2'-8"	3'-8"			1140
P502	94	4'-8"	105	2'-8"	1'-0"			458
P503	2	4'-3"	105	2'-3"	1'-0"			9
P601	8	8'-2"	123	1'-4"	2'-0"			98
P602	16	28'-9"	Str.					691
P801	80	11'-4"	100	9'-2"				2421
P901	56	11'-8"	100	9'-2"				2221
P1101	12	26'-3"	Str.					1674
P1102	12	25'-6"	Str.					1626
P1103	12	25'-0"	Str.					1594
P1104	12	24'-6"	Str.					1562
P1105	16	24'-0"	Str.					2040
P1106	12	23'-6"	Str.					1438
P1107	12	23'-0"	Str.					1466
P1108	16	22'-3"	Str.					1891
P1109	104	8'-4"	104	6'-9"	1'-7"			4605
P1110	5	14'-10"	124	3/8"	7'-9"	7'-9"	1'-6"	394
P1111	5	14'-10"	125	3/8"	7'-9"	7'-9"	1'-6"	394
P1112	10	35'-0"	Str.					1860
P1113	10	24'-3"	Str.					1288
P1114	7	18'-6"	Str.					688
P1115	7	36'-9"	Str.					1367
P1116	10	25'-0"	Str.					1328
P1117	10	30'-9"	Str.					1634
P1118	2	30'-9"	Str.					327
P1119	2	28'-3"	Str.					300
P1120	2	26'-9"	Str.					284
Total								34858

SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)
SP401	1	2'-8"	22'-8" ±	4 1/2"	63	408
SP402	1	2'-8"	22'-1" ±	4 1/2"	62	402
SP403	1	2'-8"	21'-6" ±	4 1/2"	60	389
SP404	1	2'-8"	21'-0" ±	4 1/2"	59	382
SP405	1	2'-8"	20'-7" ±	4 1/2"	58	376
SP406	1	2'-8"	20'-0" ±	4 1/2"	56	363
SP407	1	2'-8"	19'-6" ±	4 1/2"	55	356
SP408	1	2'-8"	18'-11" ±	4 1/2"	54	349
Total						3026

NOTES:
43 reinf. C.I.P. Piles 14" Diam. required with an estimated average vert. length of 60 feet.
All battered piles shall be battered 3 on 12.
For replacement steel schedule see Sheet 4B.
For bar bending diagrams see Sheet 4C.
All piles shall be driven to a capacity of 50 tons per pile.
For rustication locations and details see Sheet 5C.
For details of shoes and anchor bolts see Sheet 6D.
For spiral reinforcing notes see Sheet 5E.

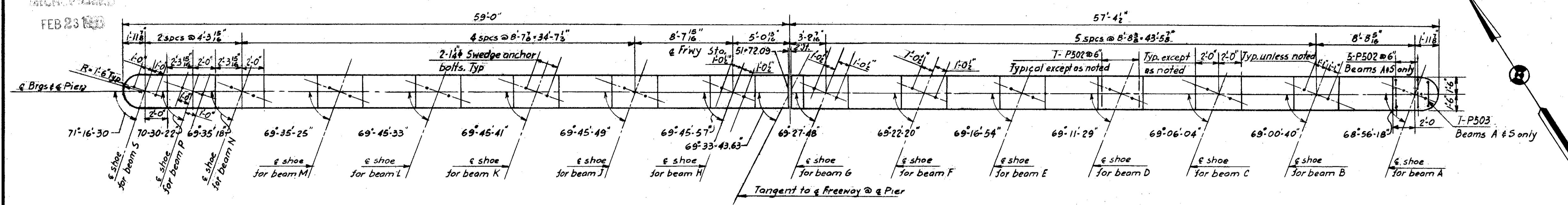
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

PIER 5 B
CLEVELAND CUYAHOGA COUNTY OHIO

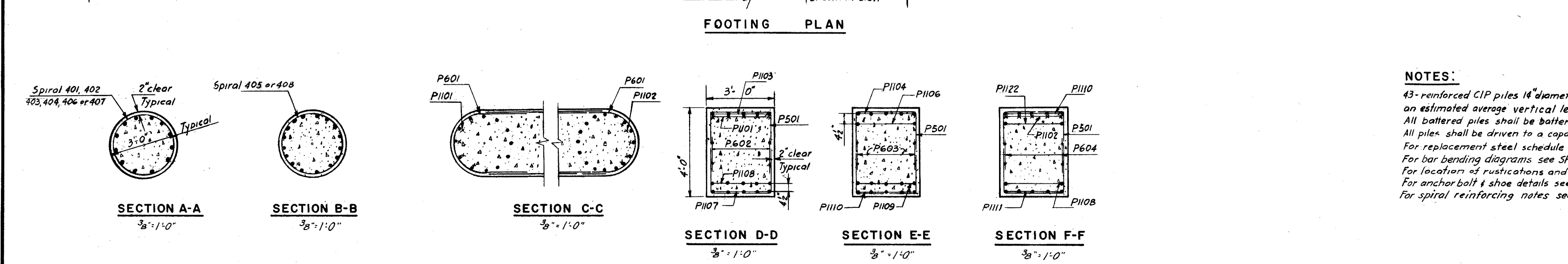
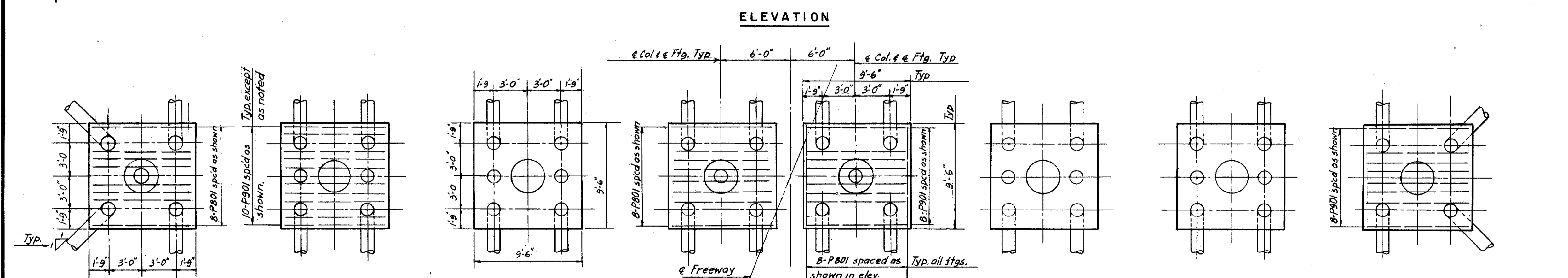
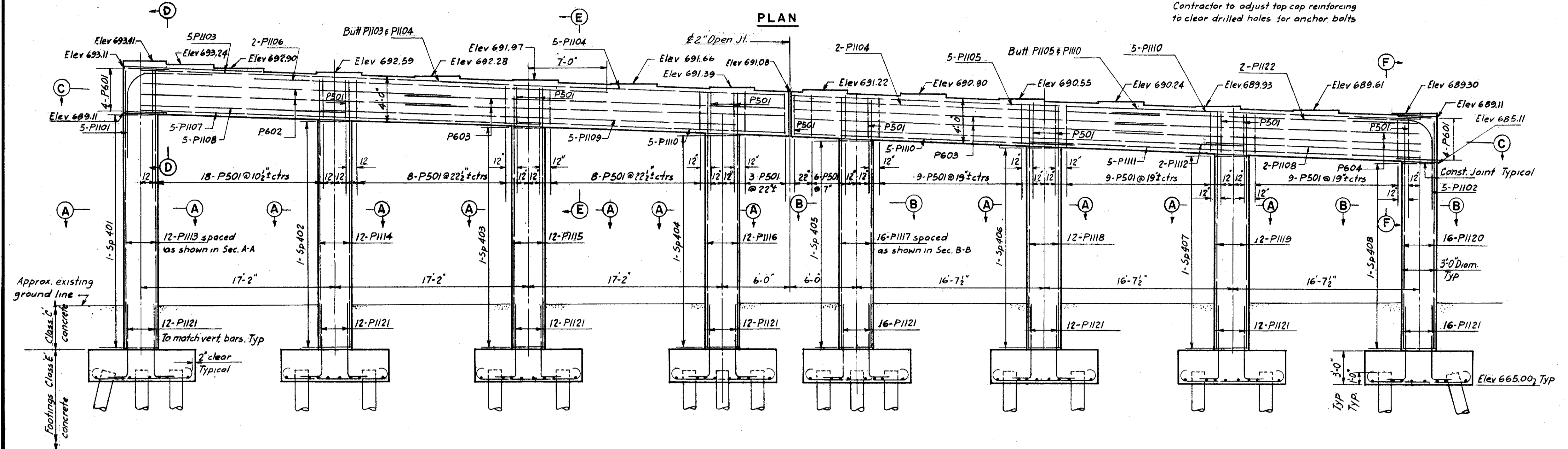
SCALE 3/8" = 1'-0" unless noted
MADE H.G. DATE 11.9.56
TRCD W.K.K. DATE 2-20-57
CHK. E.W. DATE 2-1-57

HOWARD, NEEDLES, TAMMEN & BERENDORFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-52

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



REINFORCEMENT SCHEDULE										
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)	
				A	B	C	D			
P501	82	13'-2"	109	2'-8"	3'-8"				1126	
P502	101	4'-8"	105	2'-8"	1'-0"				492	
P503	2	4'-3"	105	2'-3"	1'-0"				9	
P601	8	8'-2"	123	1'-4"	2'-0"				98	
P602	4	26'-9"	Sfr						161	
P603	8	32'-9"	Sfr						394	
P604	4	25'-0"	Sfr						150	
P801	80	11'-4"	100	9'-2"					2421	
P901	56	11'-8"	100	9'-2"					2221	
PI101	5	14'-10"	124	7'-6"	7'-9"	7'-9"	1'-6"		394	
PI102	5	14'-11"	125	7'-6"	7'-9"	7'-9"	1'-6"		396	
PI103	5	25'-9"	Sfr						684	
PI104	7	31'-6"	Sfr						1172	
PI105	5	30'-9"	Sfr						817	
PI106	2	31'-3"	Sfr						332	
PI107	5	35'-9"	Sfr						950	
PI108	7	19'-0"	Sfr						707	
PI109	5	37'-9"	Sfr						1003	
PI110	15	25'-0"	Sfr						1992	
PI111	5	34'-6"	Sfr						916	
PI112	2	36'-0"	Sfr						383	
PI113	12	24'-9"	Sfr						1578	
PI114	12	24'-3"	Sfr						1546	
PI115	12	23'-6"	Sfr						1498	
PI116	12	22'-9"	Sfr						1450	
PI117	16	22'-3"	Sfr						1891	
PI118	12	21'-9"	Sfr						1387	
PI119	12	21'-0"	Sfr						1339	
PI120	16	20'-6"	Sfr						1743	
PI121	104	8'-4"	104	6'-9"	1'-7"				4605	
PI122	2	28'-0"	Sfr						298	
									Total	34,153



SPIRAL REINFORCEMENT SCHEDULE							
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)	
SP401	1	2'-8"	21'-1"	4 1/2"	60	387	
SP402	1	2'-8"	20'-6"	4 1/2"	58	376	
SP403	1	2'-8"	19'-10"	4 1/2"	56	363	
SP404	1	2'-8"	19'-4"	4 1/2"	55	356	
SP405	1	2'-8"	18'-11"	4 1/2"	54	349	
SP406	1	2'-8"	18'-4"	4 1/2"	52	337	
SP407	1	2'-8"	17'-9"	4 1/2"	51	329	
SP408	1	2'-8"	17'-2"	4 1/2"	49	317	
						Total	2814

NOTES:
43-reinforced CIP piles 14" diameter required with an estimated average vertical length of 60 ft. All battered piles shall be battered 3 in 12. All piles shall be driven to a capacity of 50 T. For replacement steel schedule see Sh. 43. For bar bending diagrams see Sh. 43. For location of rustications and details see Sh. 50. For anchor bolt & shoe details see Sh. 50. For spiral reinforcing notes see Sh. 56.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

PIER 6 B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0" UNLESS NOTED
MADE E.V. DATE 11-14-56
TRCD L.G. DATE 2-8-57
CKD C.P. DATE 2-12-57

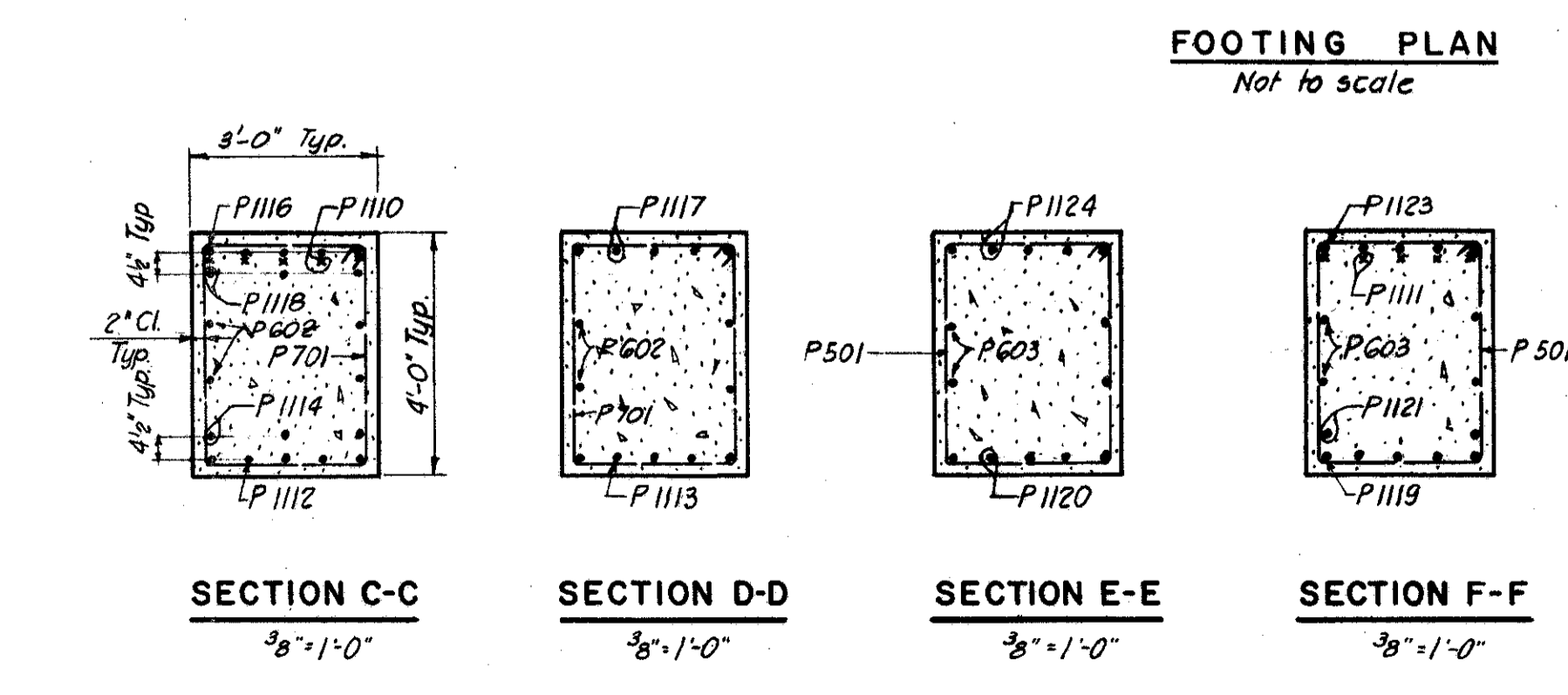
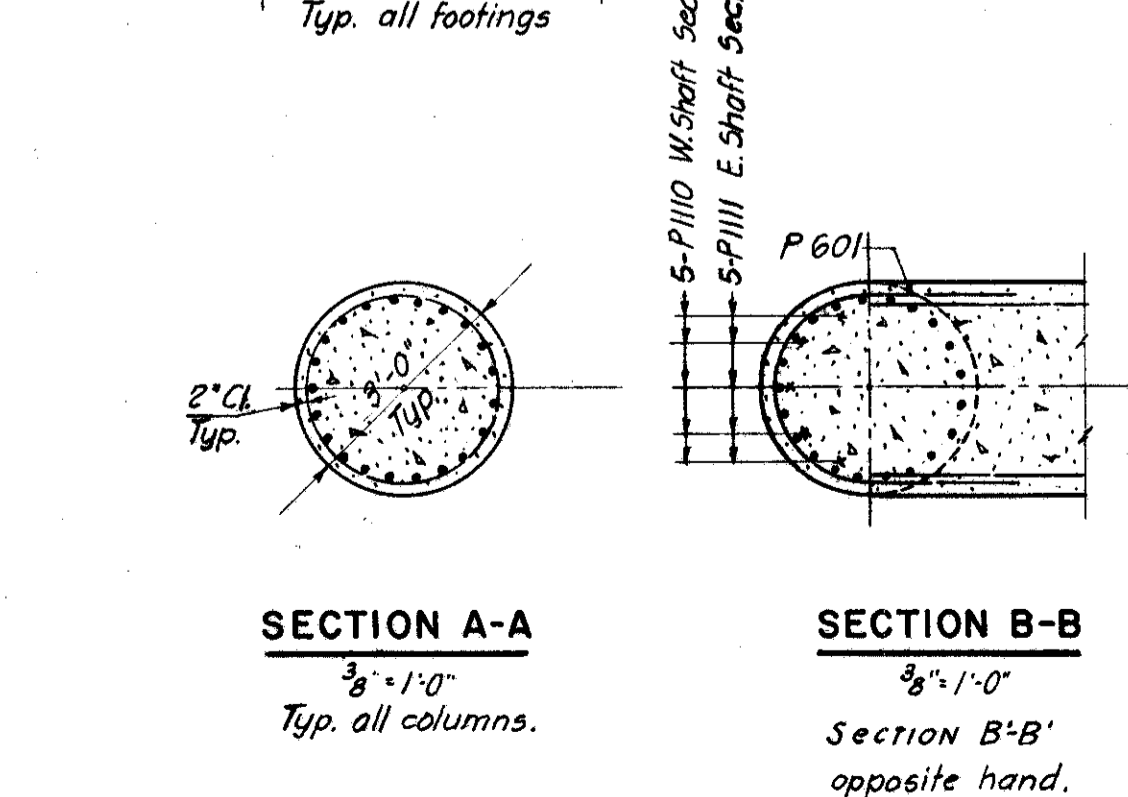
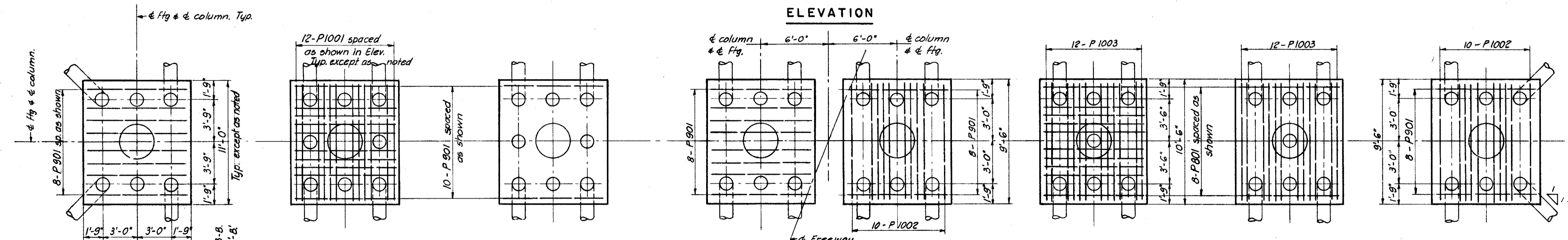
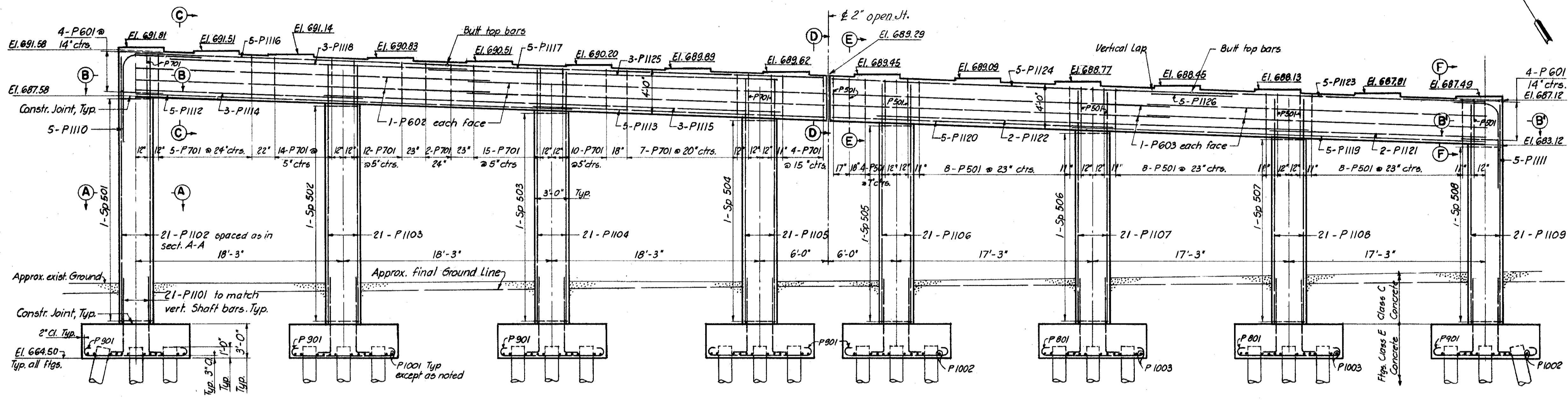
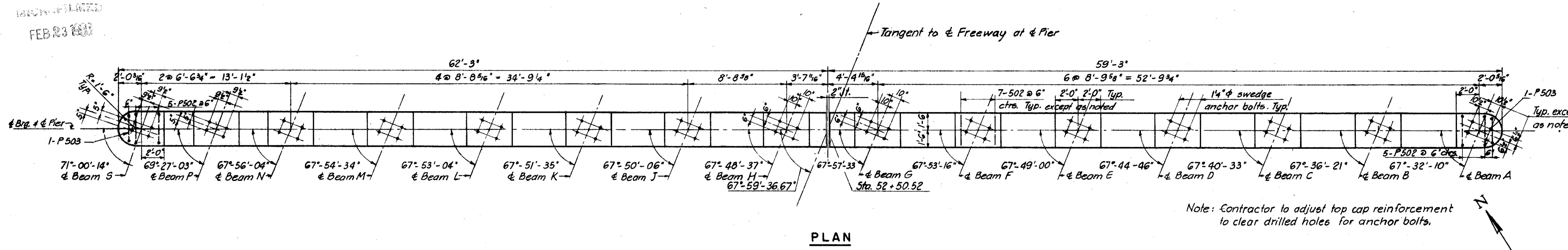
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-53

HIGH PLANNED
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

54
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



REINFORCEMENT SCHEDULE										
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)	
				A	B	C	D			
P 501	36	13'-2"	109	2'-8"	3'-8"				494	
P 502	101	4'-8"	105	2'-8"	1'-0"				492	
P 503	2	4'-3"	105	2'-3"	1'-0"				9	
P 601	8	8'-2"	123	1'-4"	2'-0"				98	
P 602	8	31'-3"	Str.						376	
P 603	8	29'-9"	Str.						357	
P 701	72	13'-4"	109	2'-8"	3'-8"				1962	
P 801	16	11'-4"	100	9'-2"					484	
P 901	52	11'-8"	100	9'-2"					2063	
P 1001	48	13'-6"	100	10'-8"					2788	
P 1002	20	12'-0"	100	9'-8"					1033	
P 1003	24	13'-0"	100	10'-2"					1343	
P 1101	168	8'-4"	104	6'-9"	1'-7"				7438	
P 1102	21	23'-6"	Str.						2622	
P 1103	21	23'-0"	Str.						2566	
P 1104	21	22'-3"	Str.						2483	
P 1105	21	21'-6"	Str.						2399	
P 1106	21	21'-0"	Str.						2343	
P 1107	21	20'-3"	Str.						2260	
P 1108	21	19'-9"	Str.						2204	
P 1109	21	19'-0"	Str.						2120	
P 1110	5	14'-10"	124	7/16	7'-9"	7'-9"	1'-6"		394	
P 1111	5	14'-10"	125	7/16	7'-9"	7'-9"	1'-6"		394	
P 1112	5	38'-3"	Str.						1016	
P 1113	5	25'-9"	Str.						684	
P 1114	3	20'-0"	Str.						319	
P 1115	3	40'-0"	Str.						638	
P 1116	5	27'-6"	Str.						731	
P 1117	5	33'-3"	Str.						883	
P 1118	3	26'-3"	Str.						418	
P 1119	5	36'-3"	Str.						963	
P 1120	5	24'-9"	Str.						657	
P 1121	2	19'-0"	Str.						202	
P 1122	2	38'-0"	Str.						404	
P 1123	5	26'-0"	Str.						691	
P 1124	5	31'-9"	Str.						843	
P 1125	3	30'-6"	Str.						486	
P 1126	5	7'-0"	Str.						186	
									Total	47843

SPIRAL REINFORCEMENT SCHEDULE							
MARK	NO	CORE DIA.	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)	
SP 501	1	2'-8"	20'-1" ±	2"	124	1117	
SP 502	1	2'-8"	19'-5" ±	2"	120	1081	
SP 503	1	2'-8"	18'-8" ±	2"	115	1036	
SP 504	1	2'-8"	18'-0" ±	2"	111	1000	
SP 505	1	2'-8"	17'-7" ±	2"	87	793	
SP 506	1	2'-8"	16'-11" ±	2"	84	766	
SP 507	1	2'-8"	16'-4" ±	2"	81	738	
SP 508	1	2'-8"	15'-7" ±	2"	78	710	
						Total	7241

NOTES:
54 reinf. C.I.P. Piles 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 3 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sheet 43.
For drainage details see Sheet 108 & 109.
For rustication locations and details see Sheet 55.
For details of shoes and anchor bolts see Sheet 59.
For bar bending diagrams see Sheet 45.
For spiral reinforcing notes see sheet 56

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

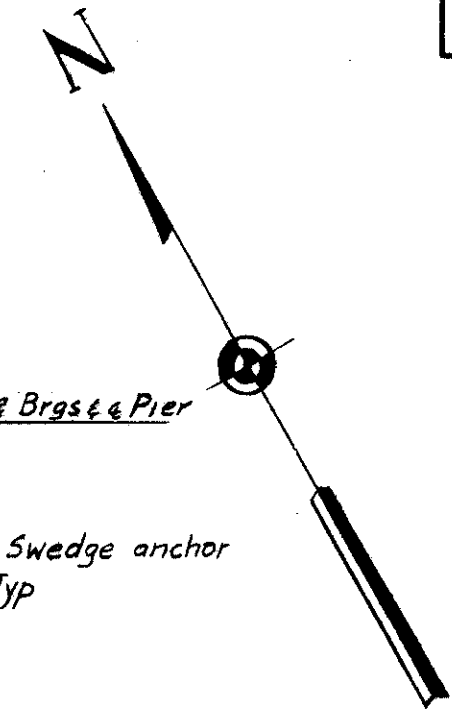
PIER 7 B

CLEVELAND CUYAHOGA COUNTY OHIO

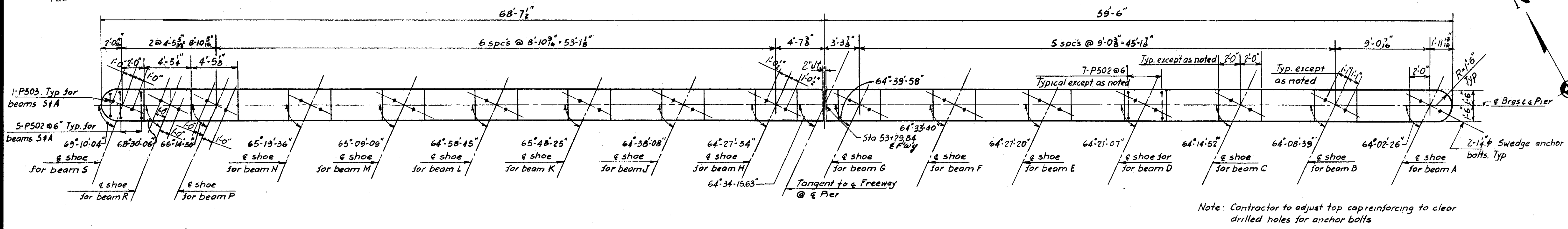
SCALE 3/16" = 1'-0" EXC. AS NOTED
MADE H.G. DATE 11-14-56
TRCD N.R.K. DATE 2-20-57
CKD F.W. DATE 2-1-57

HOWARD, NEEDLES, TAMMEN & BERGENHOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET 54

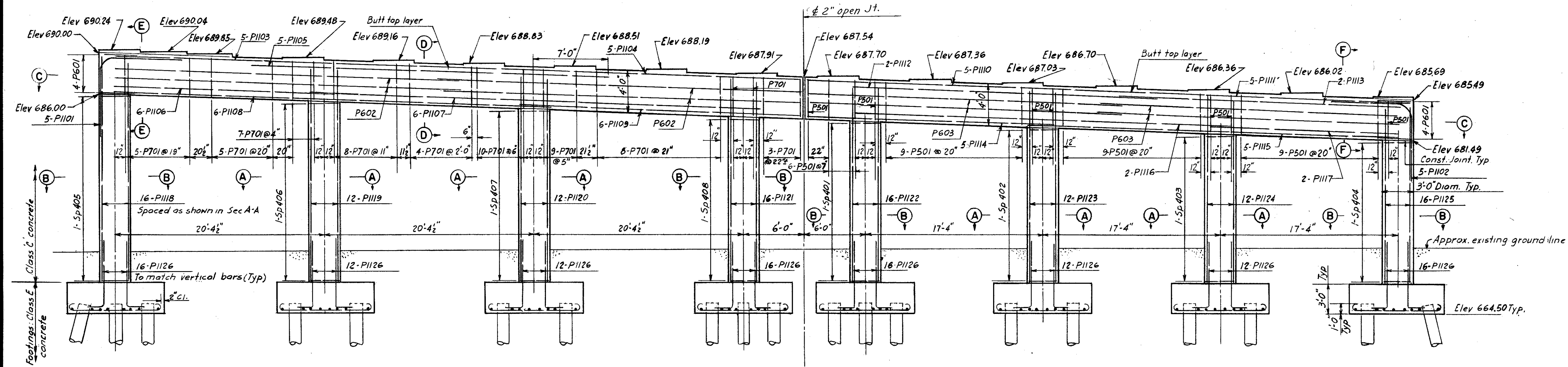
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



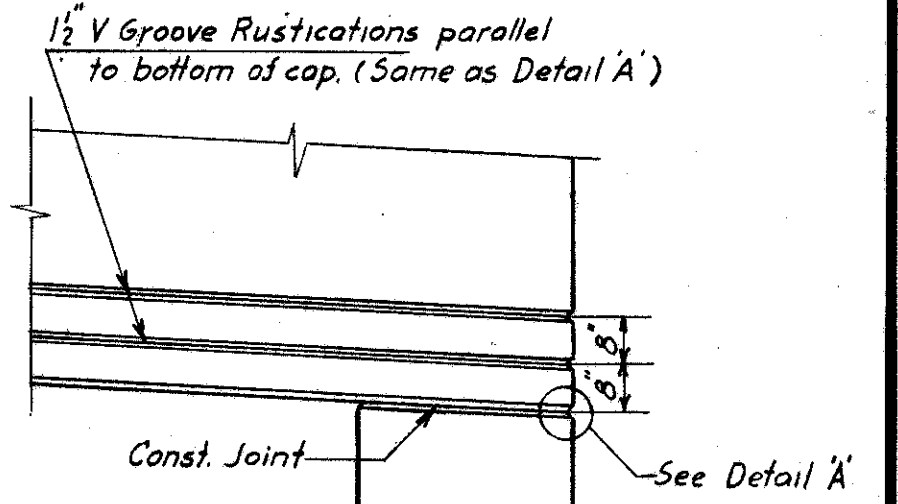
FEB 23 1957



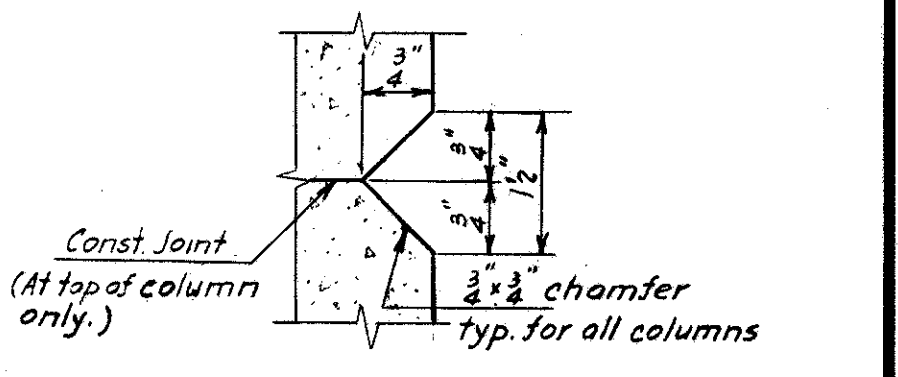
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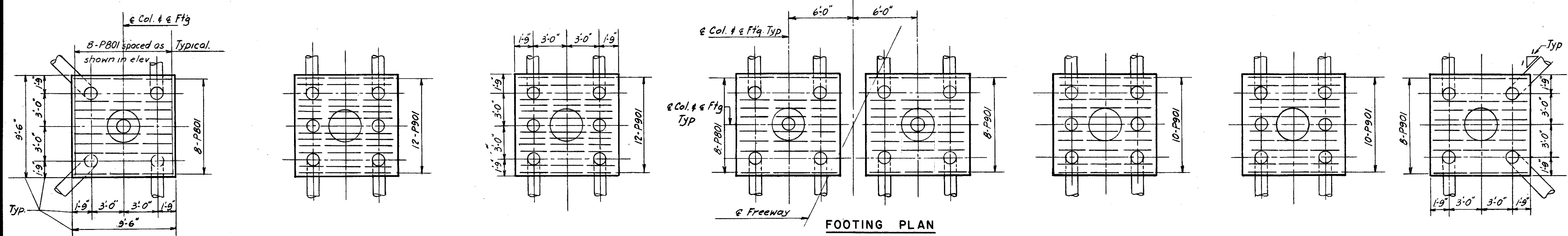
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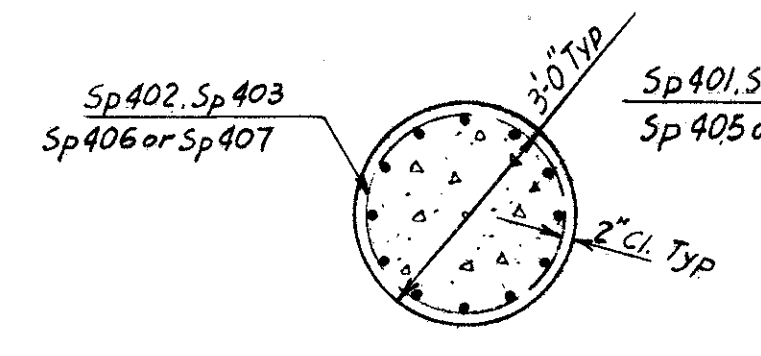
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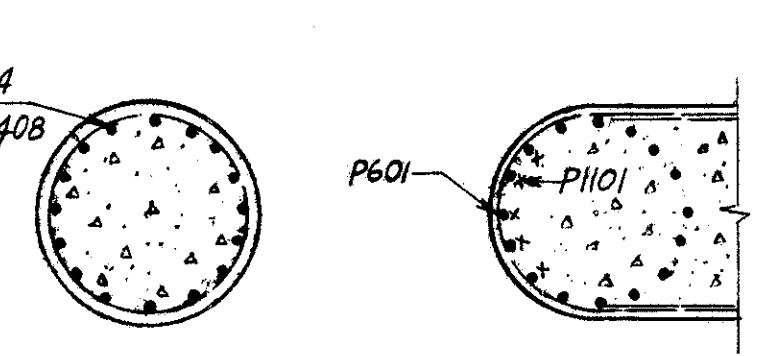
DETAIL A
half size



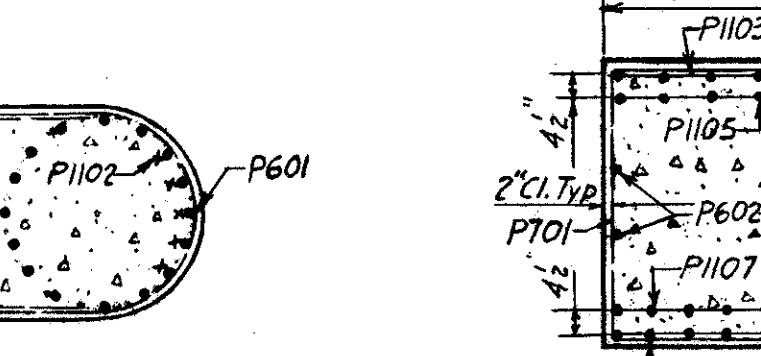
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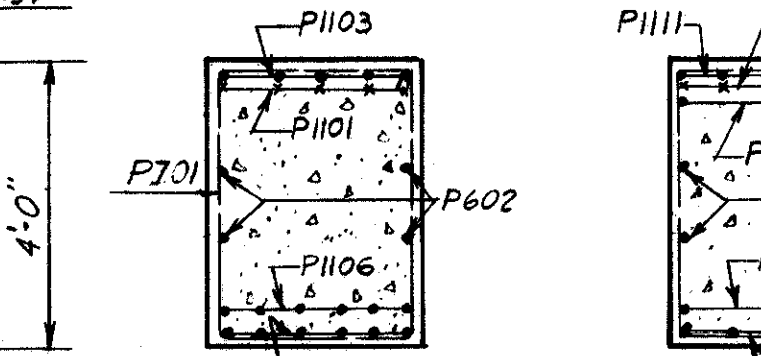
SECTION A-A
3/8" = 1'-0"



SECTION B-B
3/8" = 1'-0"



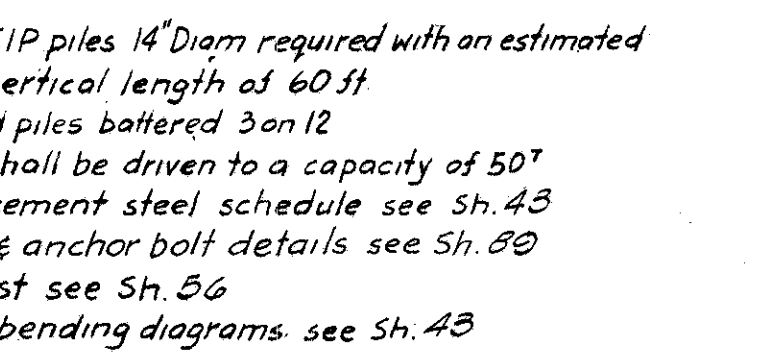
SECTION C-C
3/8" = 1'-0"



SECTION D-D
3/8" = 1'-0"



SECTION E-E
3/8" = 1'-0"



SECTION F-F
3/8" = 1'-0"

NOTES:
43-Reinf. CIP piles 14" diam required with an estimated average vertical length of 60 ft
All battered piles battered 3 on 12
All piles shall be driven to a capacity of 50 T
For replacement steel schedule see Sh. 43
For shoe & anchor bolt details see Sh. 50
For bar list see Sh. 56
For bar bending diagrams see Sh. 43

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
PIER 8 B
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE 3/8" = 1'-0" unless noted
MADE E.W. DATE 11-19-56
TRCD H.G. DATE 2-11-57
CKD L.P. DATE 2-12-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-55

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

PIER 8B-REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENTS	WEIGHT (lbs.)
				A	B	C	D		
P501	40	13'-2"	109	2'-8"	3'-8"				549
P502	108	4'-8"	105	2'-8"	1'-0"				526
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	8	34'-6"	Str.						415
P603	8	30'-0"	Str.						360
P701	61	13'-4"	109	2'-8"	3'-8"				1662
P801	80	11'-4"	100	9'-2"					2421
P901	60	11'-8"	100	9'-2"					2380
P1101	5	14'-10"	124	7/8"	7'-9"	7'-9"	1'-6"		394
P1102	5	14'-11"	125	7/8"	7'-9"	7'-9"	1'-6"		396
P1103	5	30'-6"	Str.						810
P1104	5	36'-3"	Str.						963
P1105	5	34'-6"	Str.						916
P1106	6	22'-3"	Str.						709
P1107	6	44'-0"	Str.						1403
P1108	6	42'-6"	Str.						1355
P1109	6	28'-3"	Str.						901
P1110	5	31'-9"	Str.						844
P1111	5	26'-0"	Str.						691
P1112	2	29'-0"	Str.						308
P1113	2	27'-9"	Str.						295
P1114	5	25'-3"	Str.						671
P1115	5	36'-0"	Str.						956
P1116	2	38'-0"	Str.						404
P1117	2	19'-3"	Str.						205
P1118	16	22'-0"	Str.						1870
P1119	12	21'-3"	Str.						1355
P1120	12	20'-6"	Str.						1507
P1121	16	19'-9"	Str.						1679
P1122	16	19'-6"	Str.						1658
P1123	12	19'-0"	Str.						1211
P1124	12	18'-3"	Str.						1164
P1125	16	17'-6"	Str.						1488
P1126	112	8'-4"	104	6'-9"	1'-7"				4959
								TOTAL	37332

PIER 9B-REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENTS	WEIGHT (lbs.)
				A	B	C	D		
P501	43	13'-2"	109	2'-8"	3'-8"				591
P502	112	4'-8"	105	2'-8"	1'-0"				545
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	8	38'-6"	Str.						463
P603	8	31'-0"	Str.						372
P701	63	13'-4"	109	2'-8"	3'-8"				1717
P801	74	11'-4"	100	9'-2"					2239
P901	72	11'-8"	100	9'-2"					2856
P1101	126	8'-4"	104	6'-9"	1'-7"				5579
P1102	21	20'-6"	Str.						2287
P1103	12	19'-9"	Str.						1259
P1104	12	18'-9"	Str.						1195
P1105	21	18'-0"	Str.						2008
P1106	18	17'-9"	Str.						1698
P1107	12	17'-0"	Str.						1084
P1108	12	16'-3"	Str.						1036
P1109	18	15'-6"	Str.						1482
P1110	4	14'-10"	124	7/8"	7'-9"	7'-9"	1'-6"		315
P1111	5	14'-10"	125	7/8"	7'-9"	7'-9"	1'-6"		394
P1112	6	48'-0"	Str.						1530
P1113	6	30'-9"	Str.						980
P1114	6	25'-0"	Str.						797
P1115	6	49'-9"	Str.						1586
P1116	6	34'-9"	Str.						1108
P1117	6	40'-6"	Str.						1291
P1118	6	43'-3"	Str.						1379
P1119	5	25'-6"	Str.						677
P1120	5	38'-0"	Str.						1009
P1121	2	39'-9"	Str.						422
P1122	2	19'-9"	Str.						210
P1123	5	32'-9"	Str.						870
P1124	5	27'-3"	Str.						724
P1125	2	30'-6"	Str.						324
P1126	2	29'-0"	Str.						308
								TOTAL	40,442

PIER 8B SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
SP401	1	2'-8"	15'-11"	4 1/2"	46	296
SP402	1	2'-8"	15'-3"	4 1/2"	44	284
SP403	1	2'-8"	14'-8"	4 1/2"	42	272
SP404	1	2'-8"	14'-0"	4 1/2"	40	258
SP405	1	2'-8"	18'-5"	4"	59	375
SP406	1	2'-8"	17'-9"	4"	56	357
SP407	1	2'-8"	17'-0"	4"	54	344
SP408	1	2'-8"	16'-3"	4"	52	331
					TOTAL	2517

PIER 9B-SPIRAL REINFORCEMENT SCHEDULE						
MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
SP401	1	2'-8"	14'-11"	4 1/2"	41	264
SP402	1	2'-8"	13'-5"	4 1/2"	39	251
SP403	1	2'-8"	12'-9"	4 1/2"	37	239
SP404	1	2'-8"	12'-11"	4 1/2"	35	226
SP405	1	2'-8"	17'-11"	4"	54	344
SP406	1	2'-8"	16'-3"	4"	52	331
SP407	1	2'-8"	15'-6"	4"	50	317
SP408	1	2'-8"	14'-6"	4"	47	298
					TOTAL	2270

NOTES FOR SPIRAL REINFORCING BARS:

The "Length" shown in the reinforcement schedule for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown in the reinforcement schedule for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.

Spiral reinforcing bars shall not have deformations but shall in other respects conform to item S-4.

1/2 closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

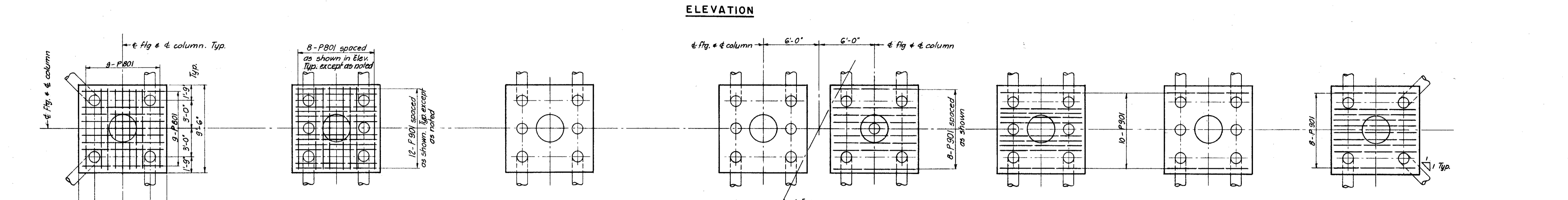
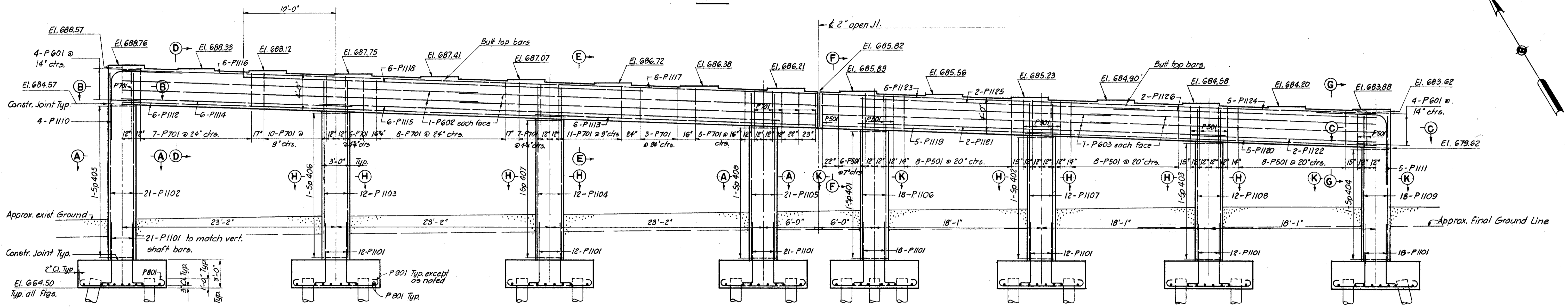
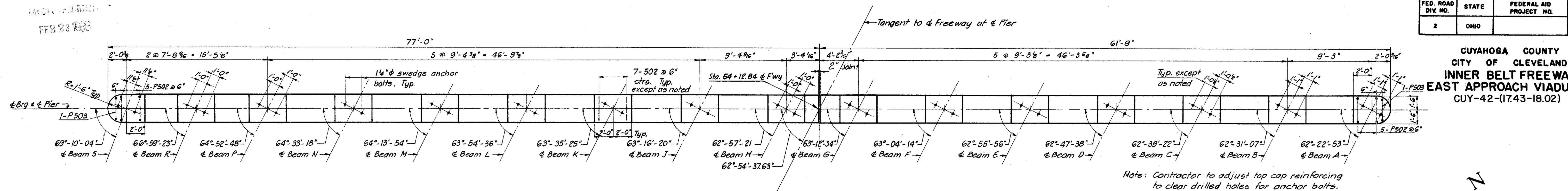
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CLEVELAND CUYAHOGA COUNTY OHIO

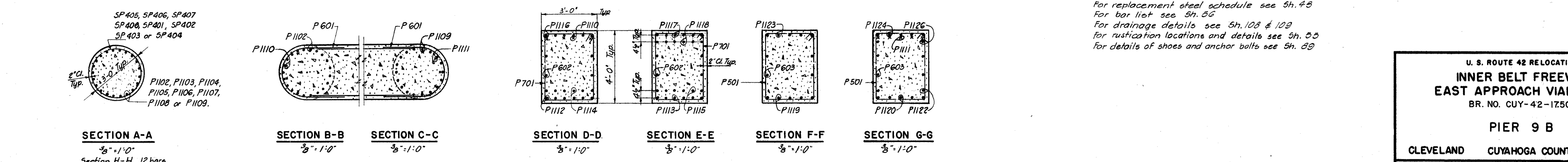
SCALE None
MADE N.O. DATE 1-7-57
TRCD H.G. DATE 2-12-57
CKD H.G. DATE 2-13-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 56

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



- NOTES:**
- 43 reinf. C.I.P. Piles 14" Diam. required with an estimated average vertical length of 60 feet.
 - All battered piles shall be battered 3 on 12.
 - All piles shall be driven to a capacity of 50 tons per pile.
 - For replacement steel schedule see 5h. 4.3
 - For bar list see 5h. 5.6
 - For drainage details see 5h. 10.8 & 10.9
 - For rustication locations and details see 5h. 5.5
 - For details of shoes and anchor bolts see 5h. 5.9



U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 9 B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE $\frac{3}{8}''=1'-0''$ unless noted
MADE I. G. DATE 11-22-56
TWO A. E. K. DATE 2-22-57
C. W. E. DATE 2-1-57

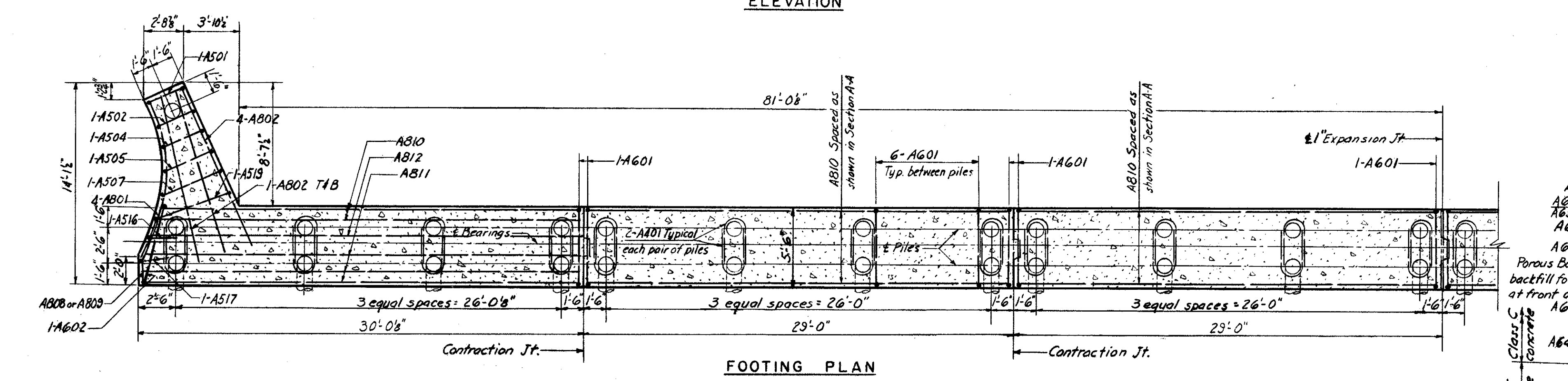
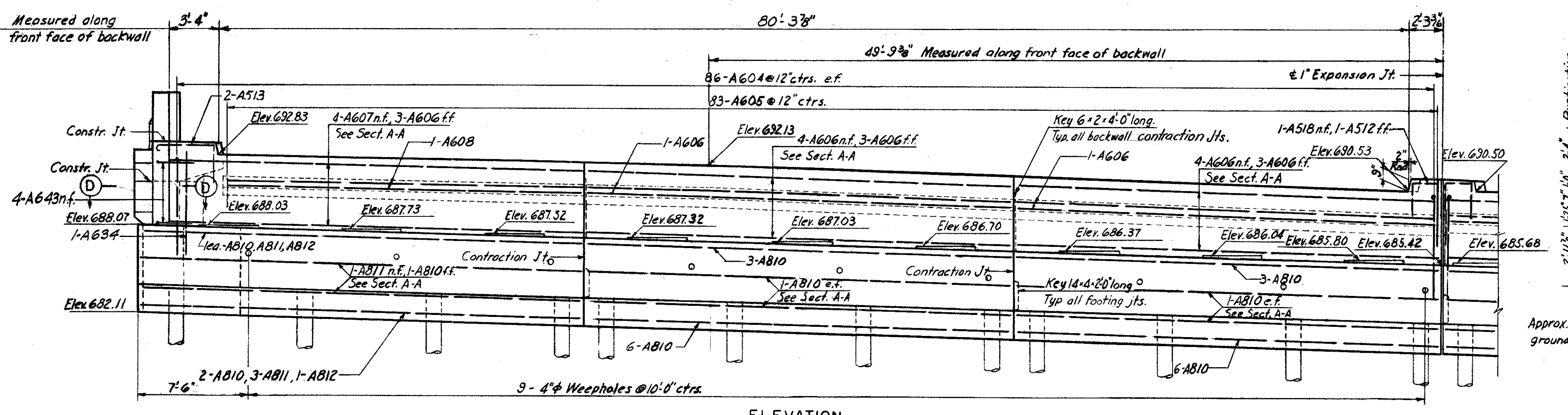
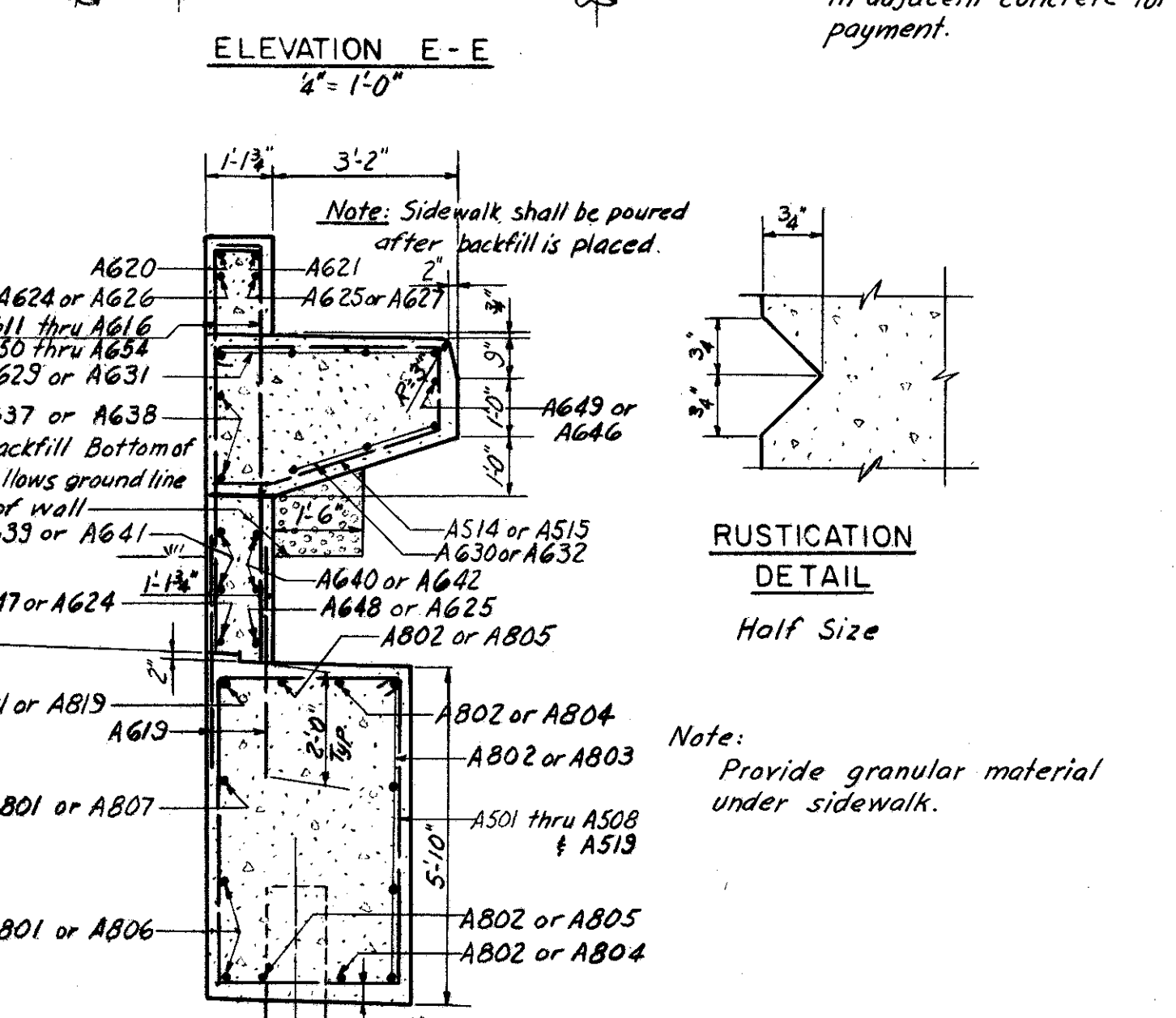
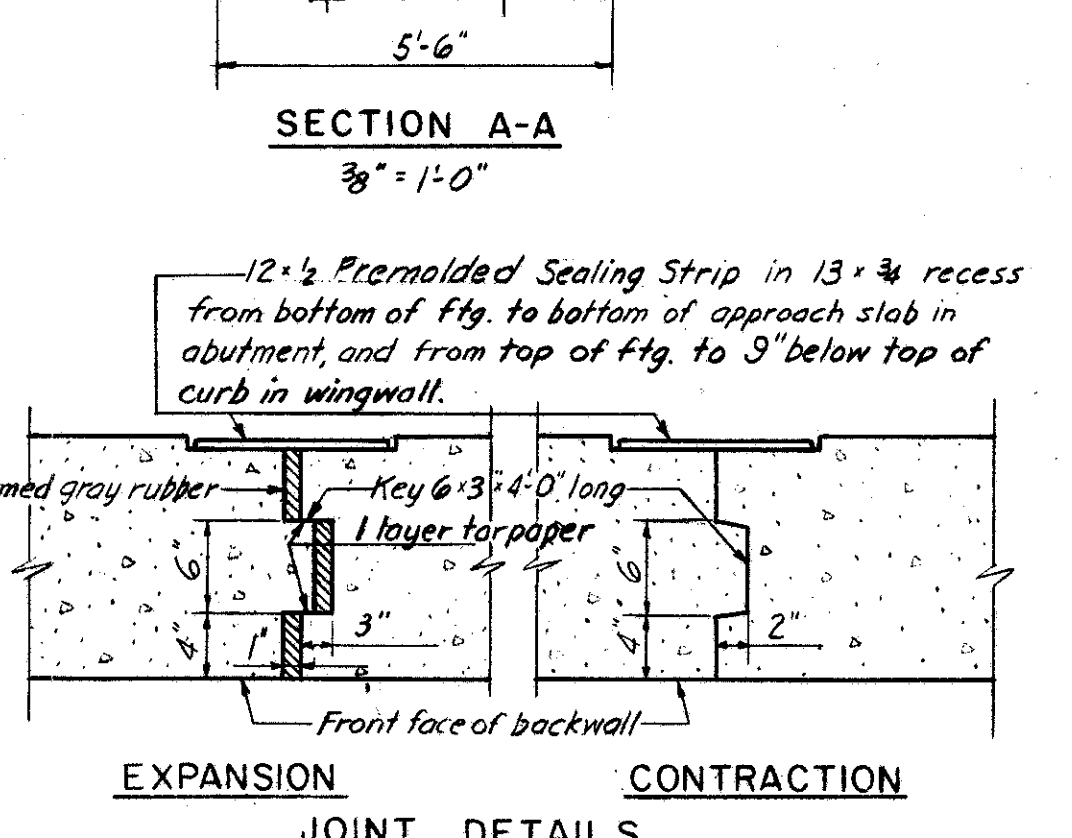
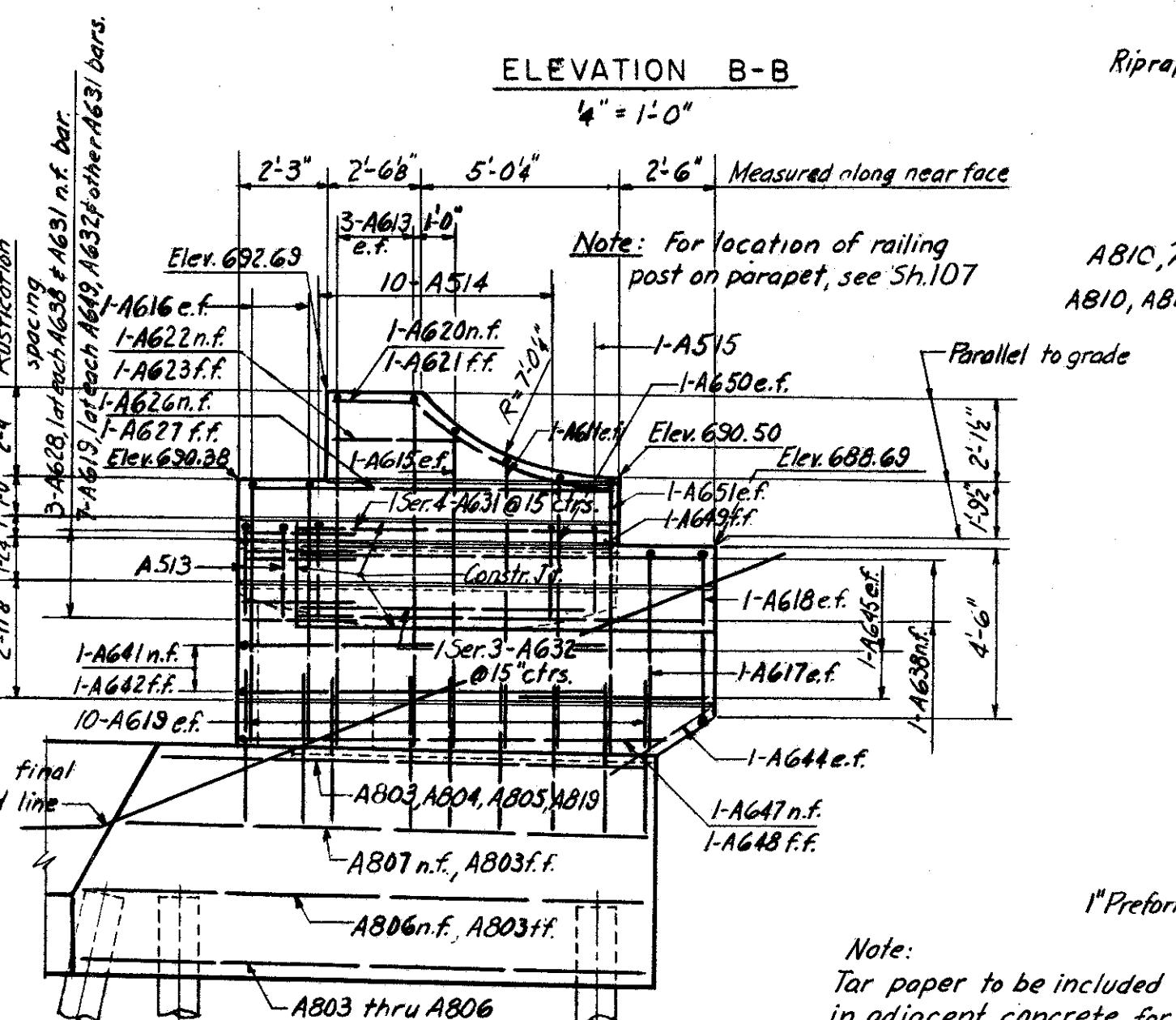
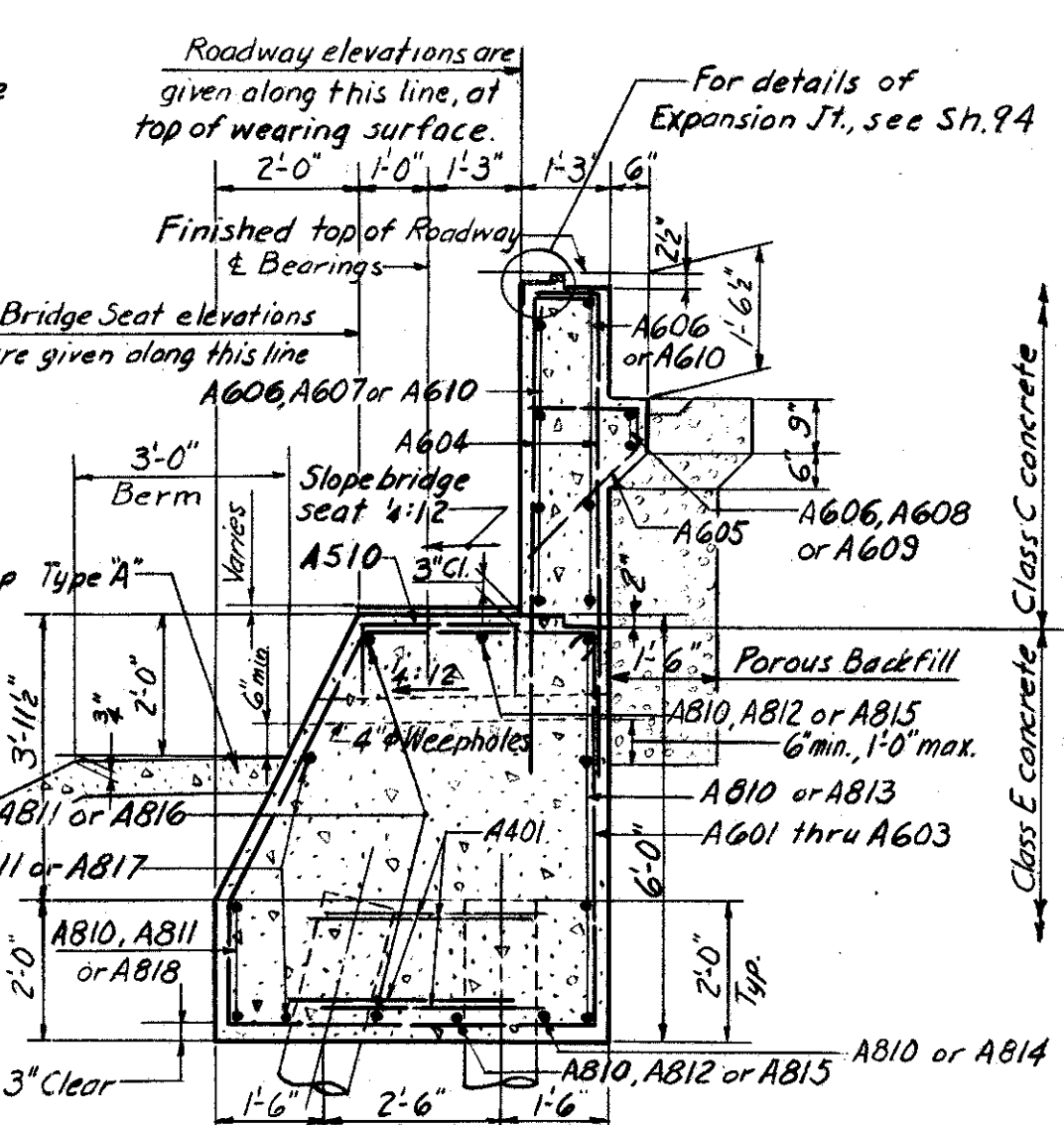
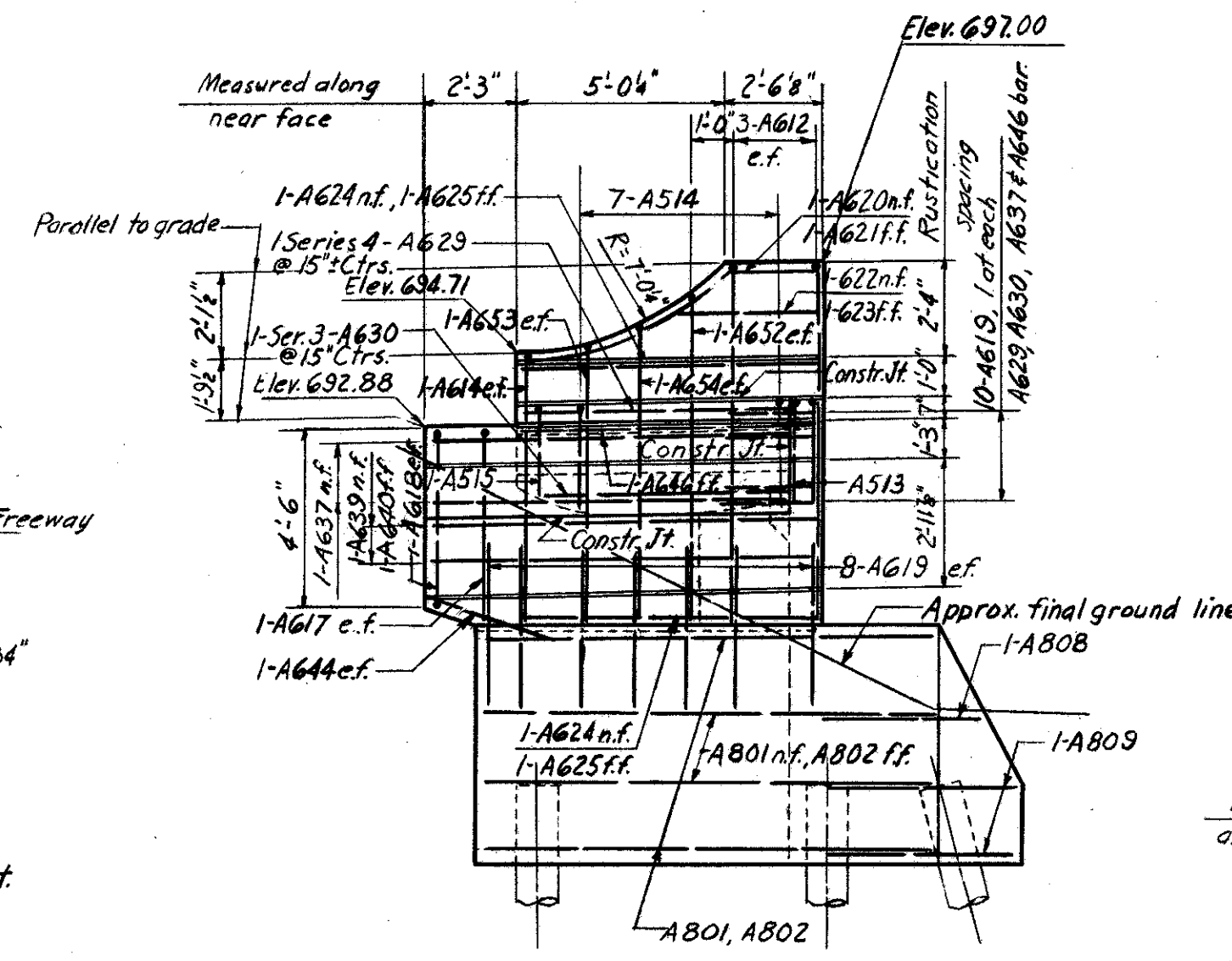
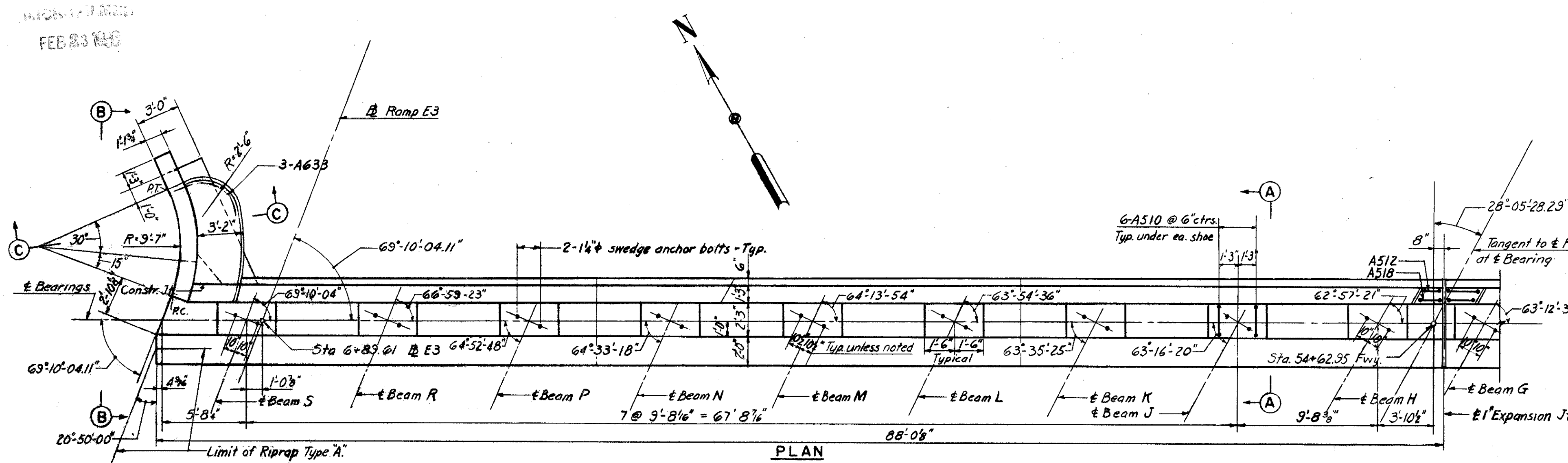
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 57

WORK SHEET
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	58 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)

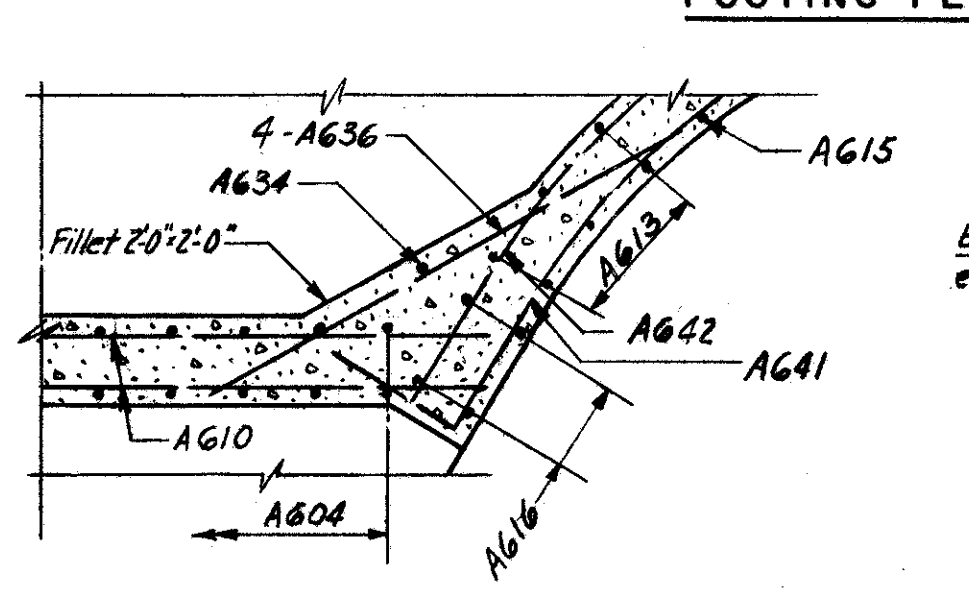
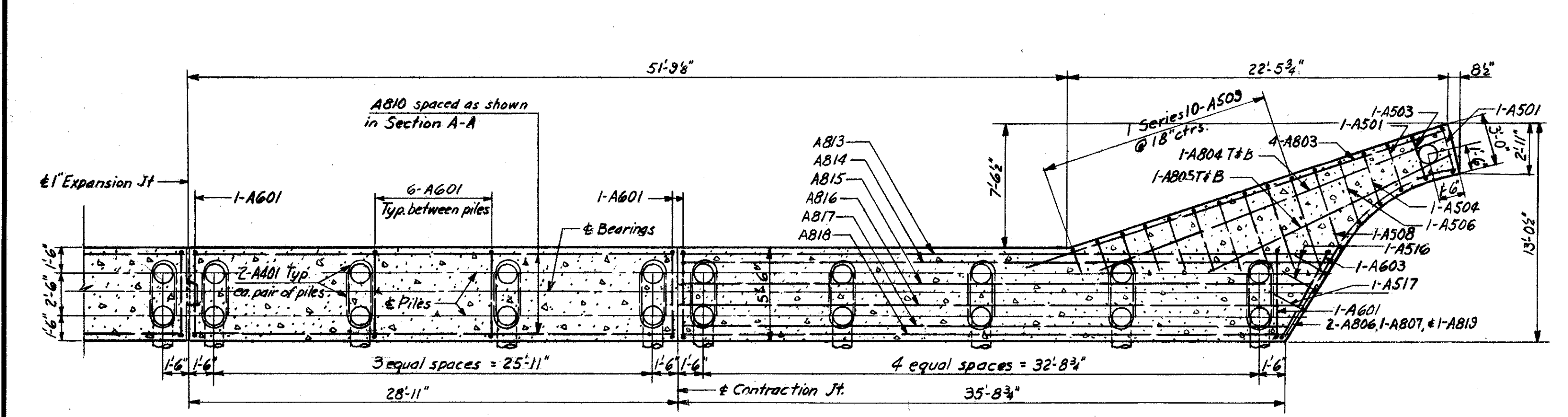
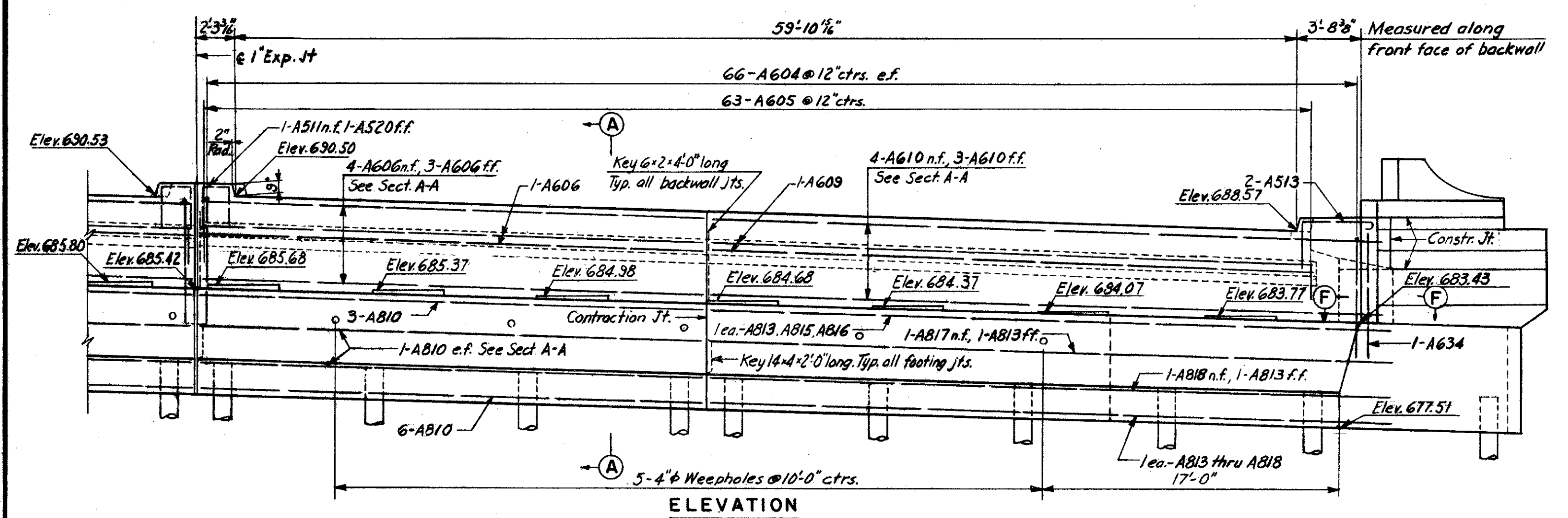
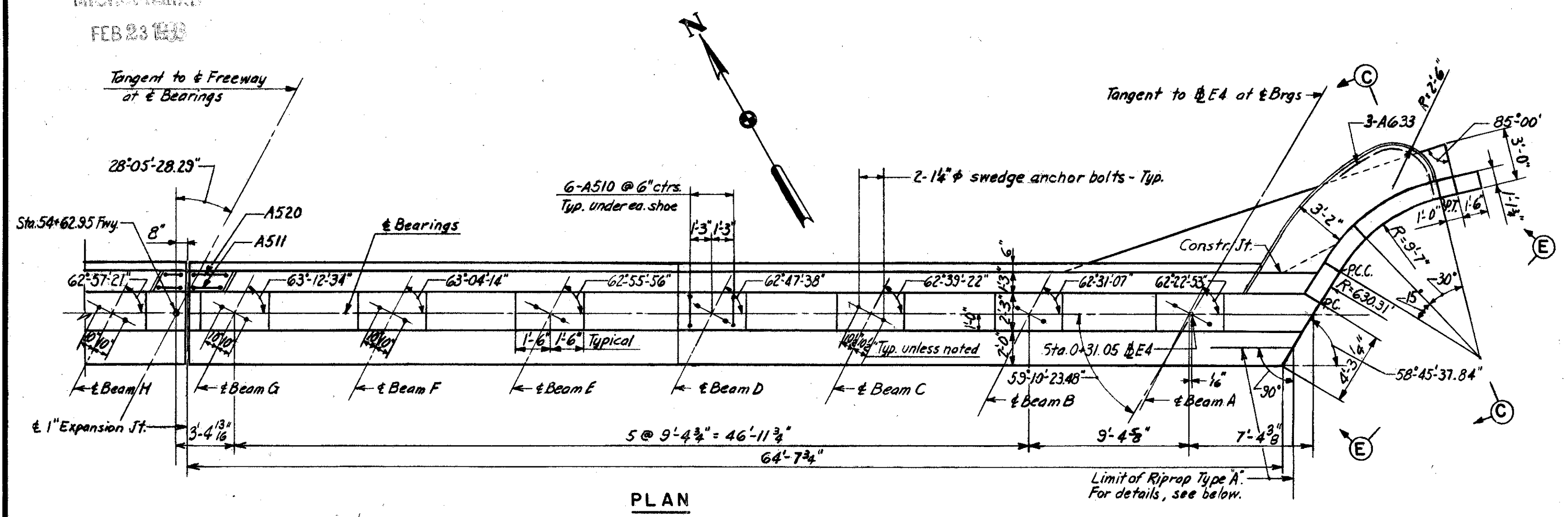
Note:
Top of backwall to follow crown of roadway.



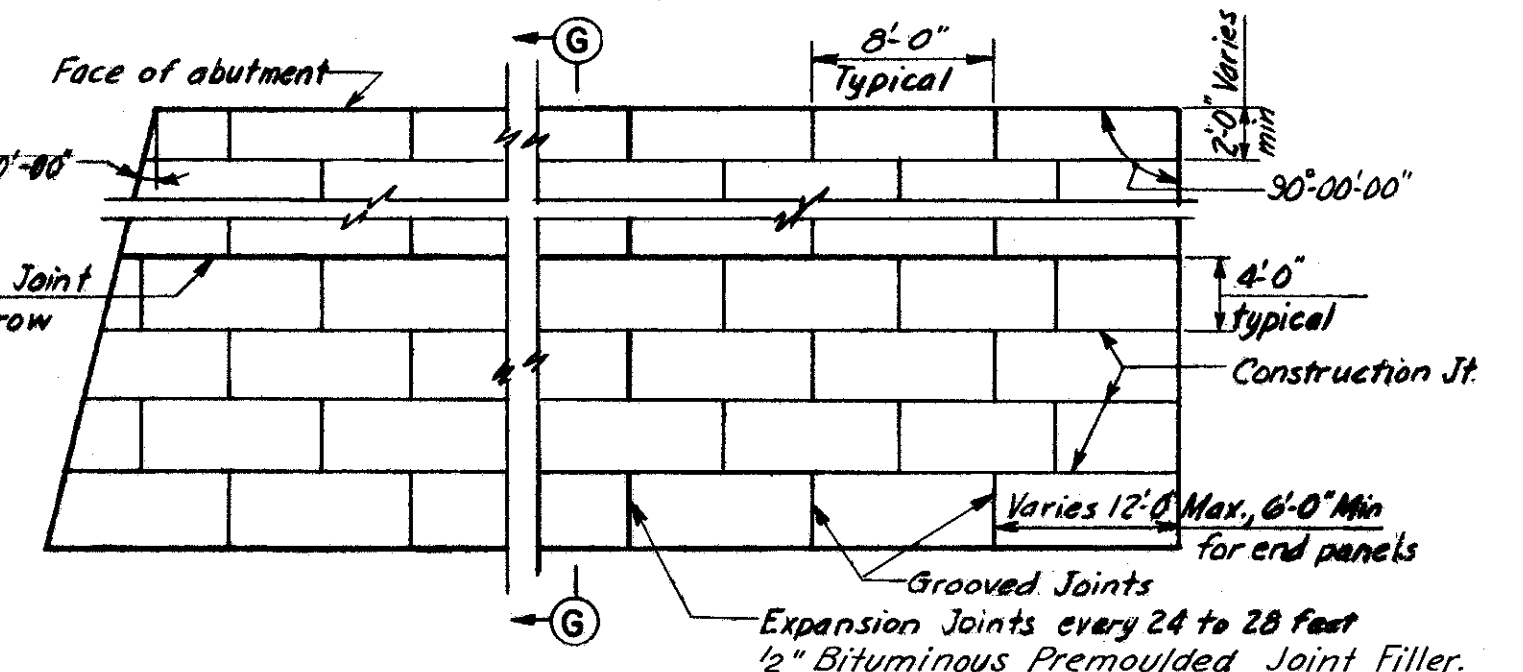
NOTES
Abutment backwall is to be poured after expansion joint is attached to superstructure.
44-1/2" Cent. C.I.P. piles reqd. for Abutment 1B, with an estimated average vertical length of 60 feet.
Piles shall be battered 3 on 12 where shown.
All piles shall be driven to a capacity of 40 tons per pile.
For shoes & anchor bolt details, see Sh. 89.
For Bar List, see Sh. 59.
Contractor to adjust reinforcement at bridge seat to clear drilled holes for swedge anchor bolts.
For replacement steel schedule, see Sh. 43.
For location of Elevation E-E, see Sh. 29.
n.f., ff., e.f., T & B denote near face, far face, each face, Top & Bottom, respectively.
For details of Riprap Type A, see Sh. 59.
For location of conduit see Sheet 107 and sheet 111.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
ABUTMENT 1B
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: 3/16" = 1'-0" Unless noted
MADE H.M.G. DATE 12-18-56
TRCD H.M.G. DATE 2-18-57
CHD. E.W. DATE 1-22-57
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-58

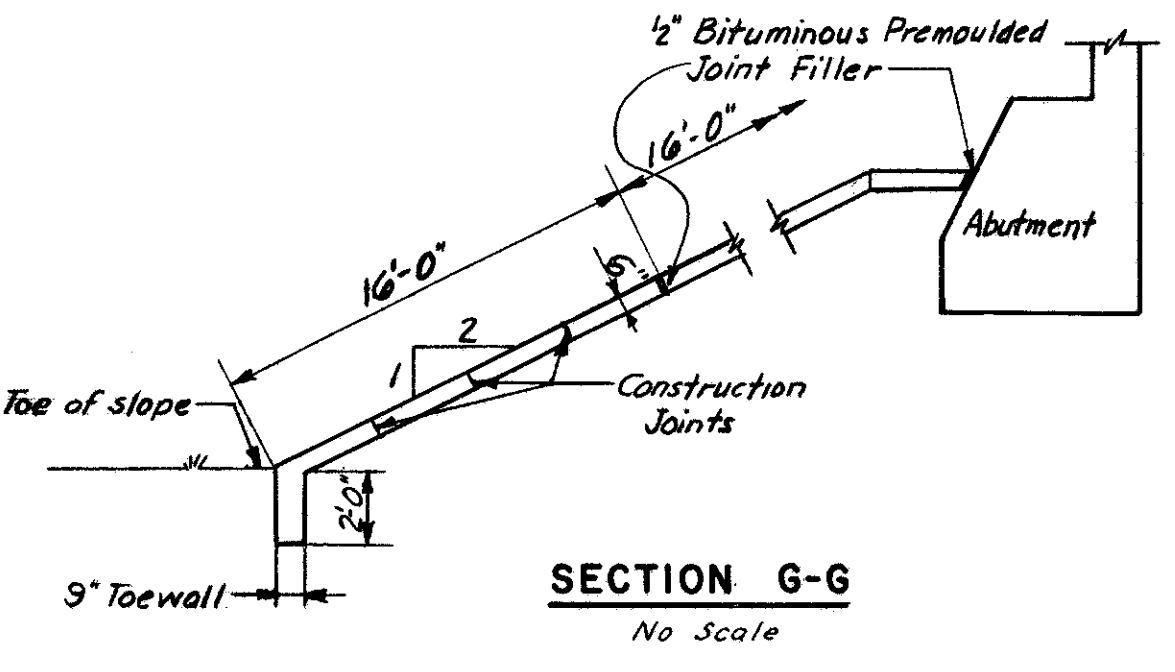
**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-1802)**



SECTION F-F
3/8" = 1'-0"



RIPRAP TYPE \"/>



SECTION G-G
No Scale

NOTE:
Riprap Type \"/>

MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)
				A	B	C	D		
A401	84	7'-1"	123	8"	2'-6"				397
A501	3	16'-6"	109	2'-8"	5'-3"				52
A502	1	16'-8"	109	2'-9"	5'-3"				17
A503	1	16'-2"	109	2'-6"	5'-3"				17
A504	2	17'-2"	109	3'-0"	5'-3"				36
A505	1	18'-4"	109	3'-7"	5'-3"				19
A506	1	18'-8"	109	3'-9"	5'-3"				19
A507	1	20'-0"	109	4'-5"	5'-3"				21
A508	1	20'-6"	109	4'-8"	5'-3"				21
A509	1 Series 10	B3" to 17'-3"	105	5'-3"	1'-6" to 6'-0"			0'-6"	133
A510	96	4'-0"	105	2'-0"	1'-0"				401
A511	1	6'-9"	105	1'-9"	2'-6"				7
A512	1	6'-2"	105	1'-2"	2'-6"				6
A513	4	6'-9"	103	3'-8"	2'-6"				28
A514	17	9'-10"	127	3'-9"	3"	3'-0"	1'-0"		174
A515	2	8'-2"	127	3'-0"	3"	2'-1"	1'-0"		17
A516	3	9'-4"	105	5'-4"	2'-0"				29
A517	2	8'-3"	105	4'-3"	2'-0"				17
A518	1	6'-7"	105	1'-7"	2'-6"				7
A519	1	22'-8"	109	5'-9"	5'-3"				24
A520	1	7'-2"	105	2'-2"	2'-6"				7
A601	105	20'-7"	126	4'-2"	3'-4"	5'-6"	5'-2"		3246
A602	1	20'-10"	126	4'-2"	3'-5"	5'-6"	5'-4"		31
A603	1	21'-0"	126	4'-3"	3'-9"	5'-6"	5'-10"		33
A604	304	7'-6"	104	11"	6'-7"				3425
A605	146	3'-11"	130	1'-5"	6"	2'-0"	1'-5"		859
A606	30	28'-6"	Str.						1284
A607	4	27'-6"	Str.						165
A608	2	24'-0"	Str.						72
A609	2	34'-0"	Str.						102
A610	7	38'-0"	Str.						400
A611	2	8'-4"	104	10"	7'-6"				25
A612	6	9'-7"	104	10"	8'-9"				86
A613	6	9'-11"	104	10"	9'-1"				89
A614	2	7'-4"	104	10"	6'-6"				22
A615	2	9'-1"	104	10"	8'-3"				27
A616	4	7'-7"	104	10"	6'-9"				46
A617	4	5'-10"	104	10"	5'-0"				35
A618	4	5'-0"	104	10"	4'-2"				30
A619	53	4'-0"	Str.						318
A620	2	7'-9"	132	2'-4"	5'-5"	7'-2"	9'-9"		23
A621	2	8'-2"	132	2'-4"	5'-10"	7'-2"	10'-7"		25
A622	2	3'-6"	134	3'-6"	3'-9"				11
A623	2	3'-9"	134	3'-9"	10'-7"				11
A624	2	7'-4"	134	7'-4"	9'-9"				22
A625	2	8'-0"	134	8'-0"	10'-7"				24
A626	1	9'-5"	133	2'-1"	7'-4"	9'-9"			14
A627	1	10'-1"	133	2'-1"	8'-0"	10'-7"			15
A628	3	2'-6"	104	2'-6"	2'-0"				11
A629	1 Series 4	6'-3"	134	6'-3"	9'-9" to 13'-6"			1'-3"	38
A630	1 Series 3	6'-3" to 6'-9"	134	6'-3" to 6'-9"	11'-0" to 13'-6"			A10-3" to A11-3"	29
A631	1 Series 4	8'-4" to 10'-10"	134	8'-4" to 10'-10"	9'-9" to 13'-6"			A10-3" to A11-3"	58
A632	1 Series 3	9'-2" to 10'-10"	134	9'-2" to 10'-10"	11'-0" to 13'-6"			A10-3" to A11-3"	45
A633	6	7'-0"	133	1'-6"	5'-6"	2'-2"			63
A634	2	7'-0"	Str.						21
A635	4	4'-9"	Str.						29
Total									18,962

MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)
				A	B	C	D		
A636	4	7'-3"	Str.						44
A637	2	8'-5"	133	2'-1"	6'-4"	9'-9"			25
A638	2	10'-10"	133	2'-4"	8'-6"	9'-9"			33
A639	2	9'-5"	133	2'-1"	7'-4"	9'-9"			28
A640	2	10'-1"	133	2'-1"	8'-0"	10'-7"			30
A641	2	11'-7"	137	2'-1"	7'-6"	9'-9"	2'-0"		35
A642	2	10'-4"	133	2'-1"	8'-3"	10'-7"			31
A643	6	4'-7"	130	1'-11"	9"	1'-11"	1'-9"		4-1
A644	4	3'-0"	Str.						18
A645	4	4'-3"	133	2'-4"	1'-11"	9'-9"			26
A646	1	6'-3"	134	6'-3"	13'-6"				9
A647	1	12'-7"	137	2'-1"	8'-6"	9'-9"	2'-0"		19
A648	1	10'-7"	133	2'-1"	8'-6"	10'-7"			16
A649	1	10'-10"	134	10'-10"	13'-6"				16
A650	2	7'-10"	104	10"	7'-0"				24
A651	2	7'-8"	104	10"	6'-10"				23
A652	2	8'-8"	104	10"	7'-10"				26
A653	2	7'-6"	104	10"	6'-8"				23
A654	2	7'-11"	104	10"	7'-1"				24
AB01	4	11'-1"	133	2'-9"	8'-4"	9'-9"			118
AB02	8	11'-6"	Str.						246
AB03	4	26'-0"	Str.						278
AB04	2	21'-9"	Str.						116
AB05	2	16'-0"	Str.						85
AB06	2	14'-7"	133	6'-3"	8'-4"	9'-9"			78
AB07	1	13'-7"	133	5'-3"	8'-4"	9'-9"			36
AB08	1	3'-5"	108	11"	2'-4"	11"			9
AB09	2	4'-4"	108	1'-10"	2'-4"	11"			23
AB10	44	28'-6"	Str.						3348
AB11	6	29'-6"	Str.						473
AB12	2	29'-0"	Str.						155
AB13	4	38'-6"	Str.						411
AB14	1	38'-0"	Str.						101
AB15	2	37'-3"	Str.						199
AB16	2	36'-9"	Str.						196
AB17	2	36'-0"	Str.						192
AB18	2	35'-6"	Str.						190
AB19	1	12'-7"	133	4'-3"	8'-4"	9'-9"			34
Total									18,962

NOTES:
For Sections A-A, C-C, & E-E, see Sh. 58.
For bar bending diagrams, see Sh. 43.
For additional notes, see Sh. 28.
For location of conduit see Sh. 107 and Sh. 111.

**U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750**

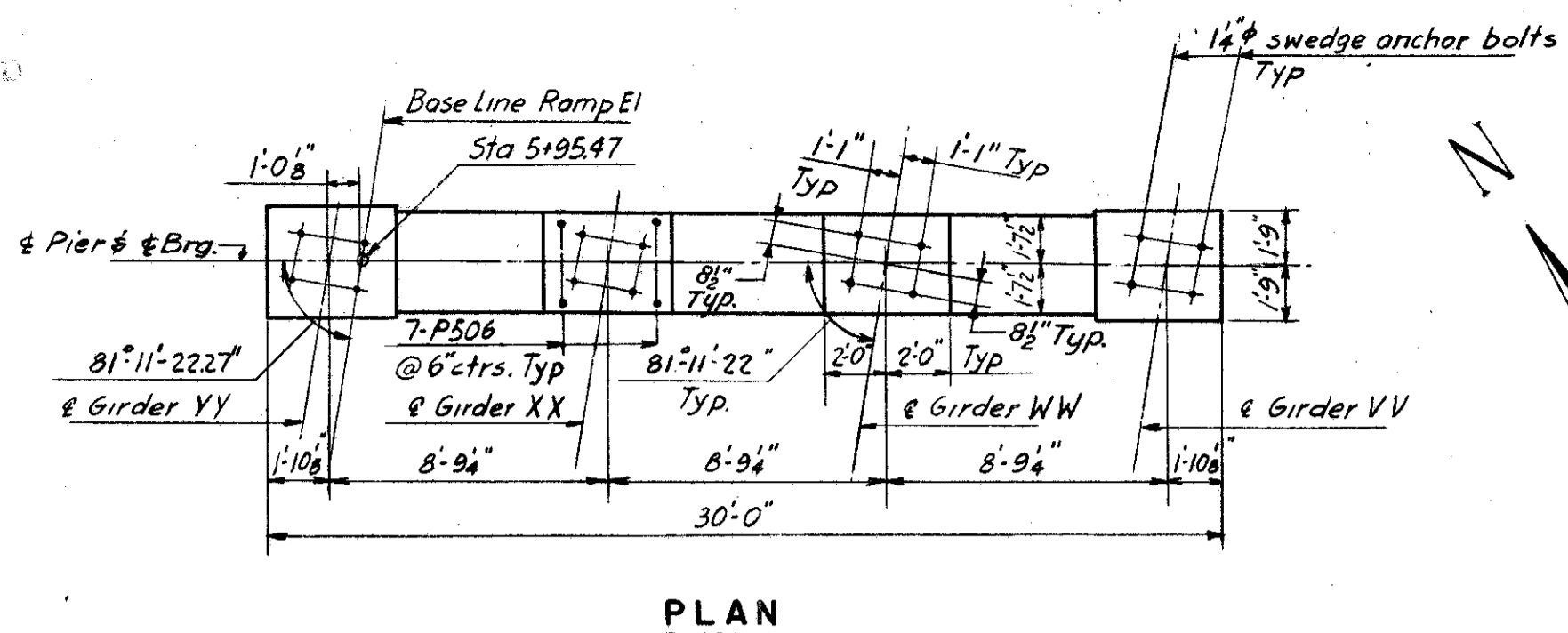
ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

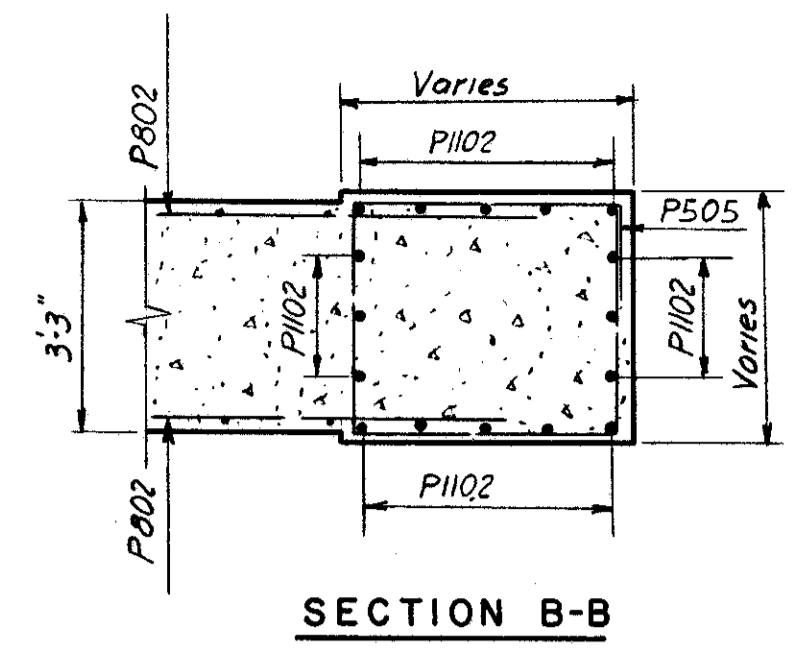
SCALE: 3/4" = 1'-0" Unless noted
MADE: H.W.C. DATE 12-18-56
TRCD: H.W.C. DATE 2-14-57
CHD: E.W. DATE 1-22-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-59

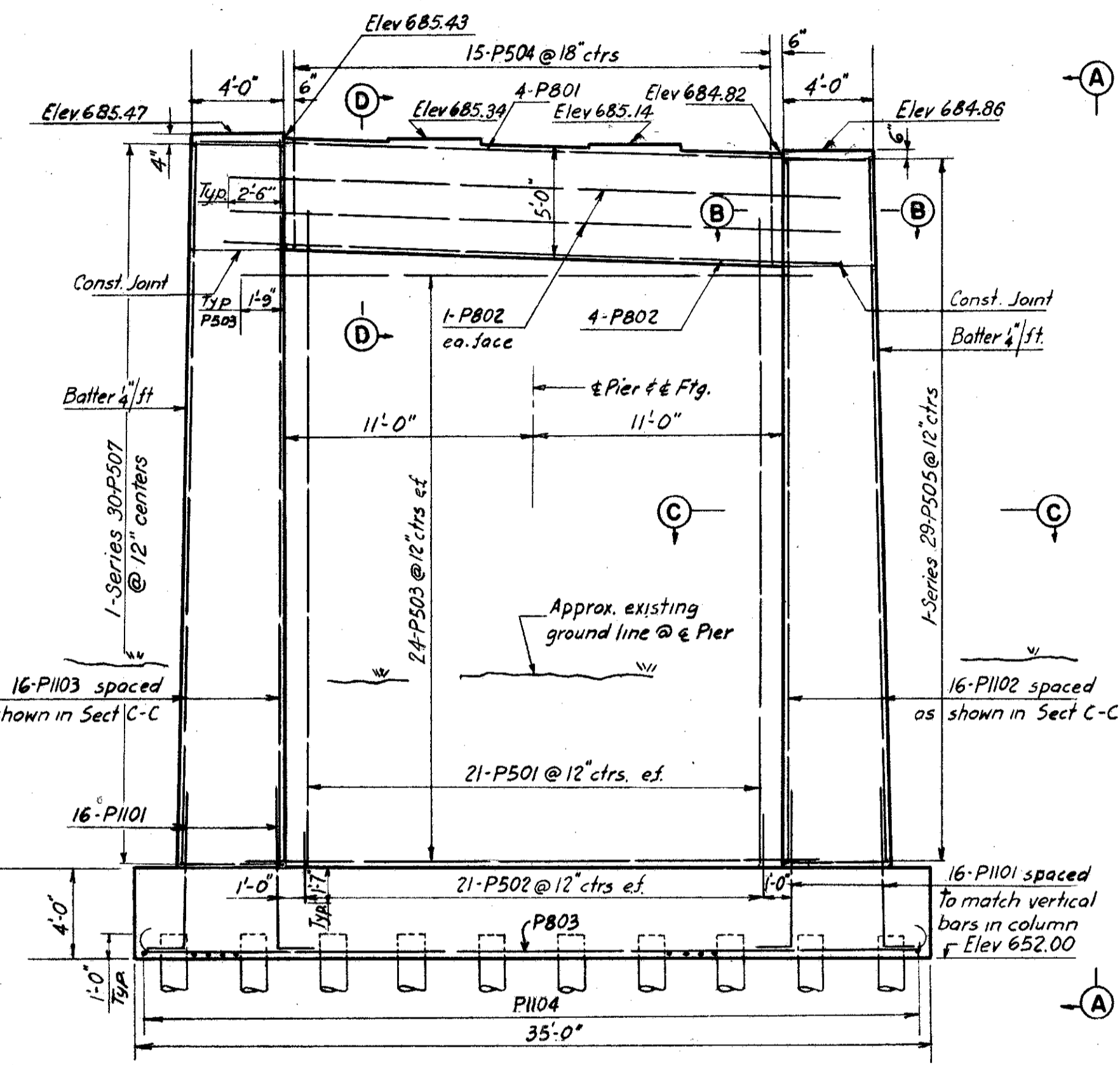
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
 CUY-42-(17.43-18.02)



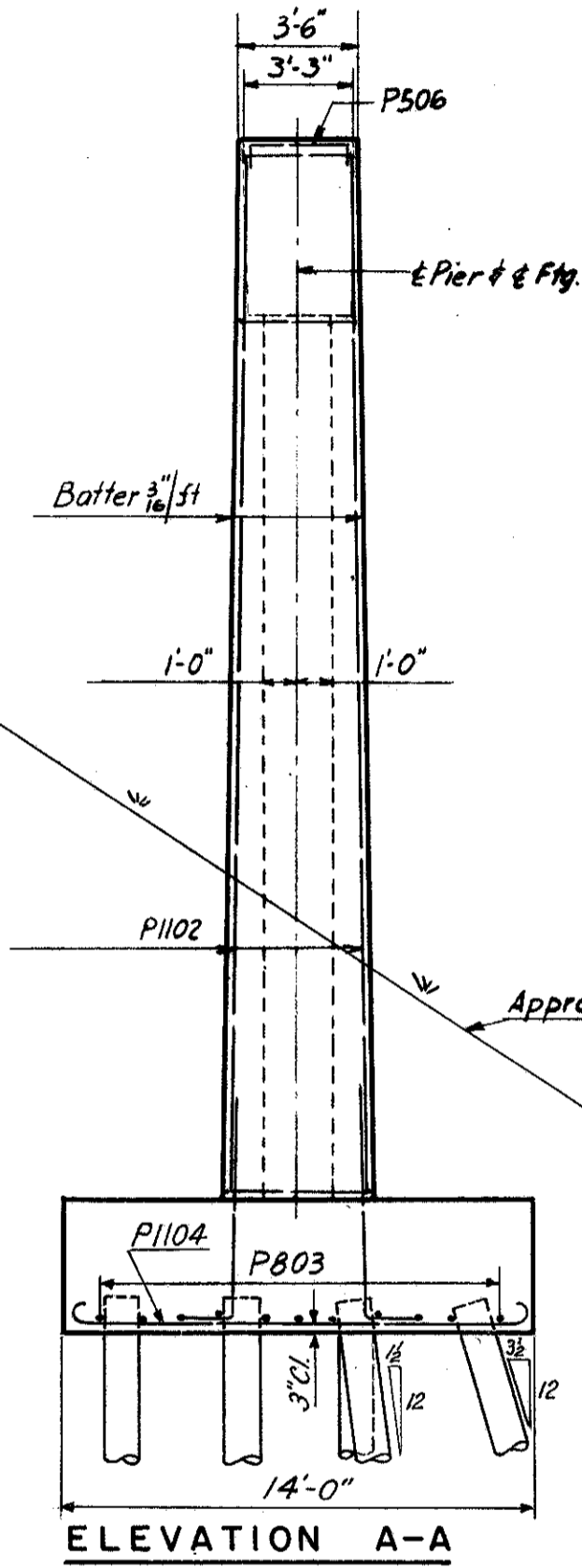
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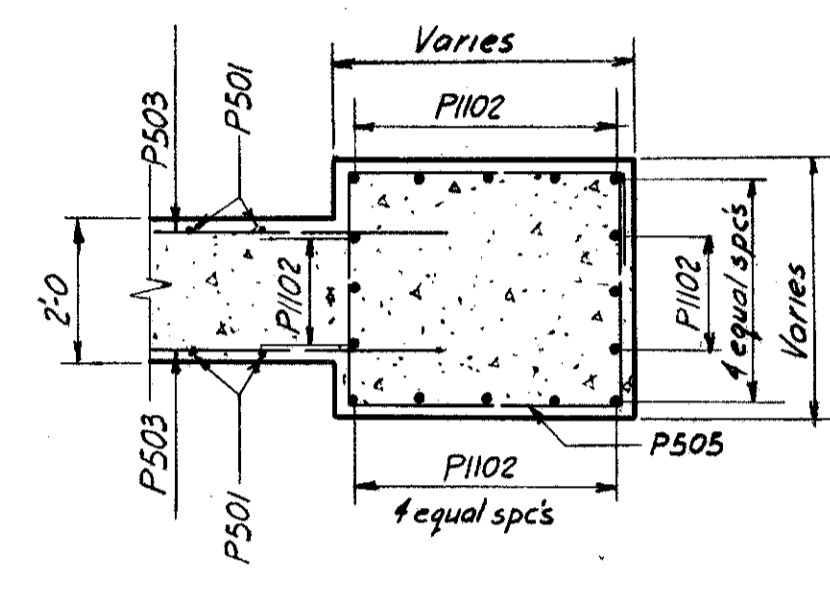
SECTION B-B
3/8" = 1'-0"



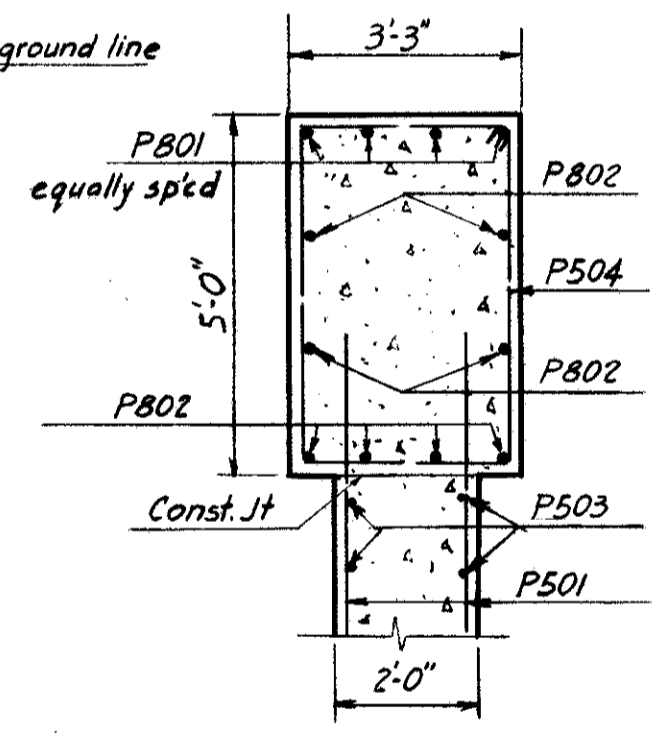
ELEVATION



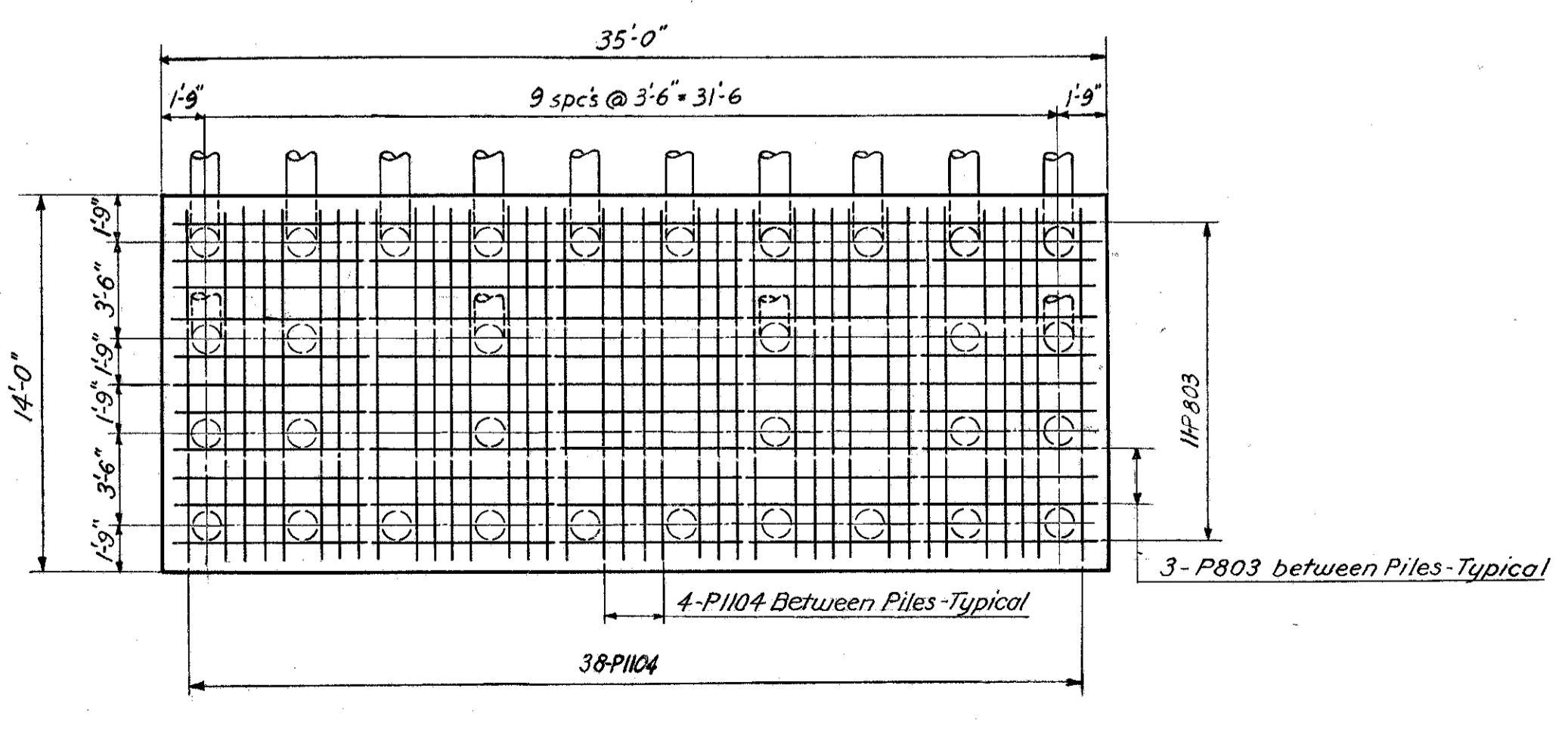
ELEVATION A-A



SECTION C-C
3/8" = 1'-0"



SECTION D-D
3/8" = 1'-0"



FOOTING PLAN

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCREMENT	WEIGHT (Lbs.)
				A	B	C	D		
P501	42	26'-0"	Str						1139
P502	42	3'-3"	Str						142
P503	48	25'-6"	Str						1277
P504	15	15'-10"	109	2'-11"	4'-8"				248
P505	1 Series 29	15'-3" to 18'-1"	136	3'-8" to 4'-3"	3'-2" to 4'-0"	1'-7"		A=8'-11" B=0'-0"	504
P506	28	4'-11"	105	2'-11"	1'-0"				144
P507	1 Series 30	15'-3" to 18'-3"	136	3'-8" to 4'-3"	3'-2" to 4'-1"	1'-7"		A=8'-11" B=0'-0"	524
P801	4	29'-6"	Str						315
P802	8	27'-0"	Str						577
P803	11	36'-10"	100	34'-8"					1082
P1101	32	8'-10"	104	7'-3"	1'-7"				1502
P1102	16	28'-6"	Str						2423
P1103	16	29'-3"	Str						2486
P1104	38	16'-10"	100	13'-8"					3399
Total =									15,762

NOTES:

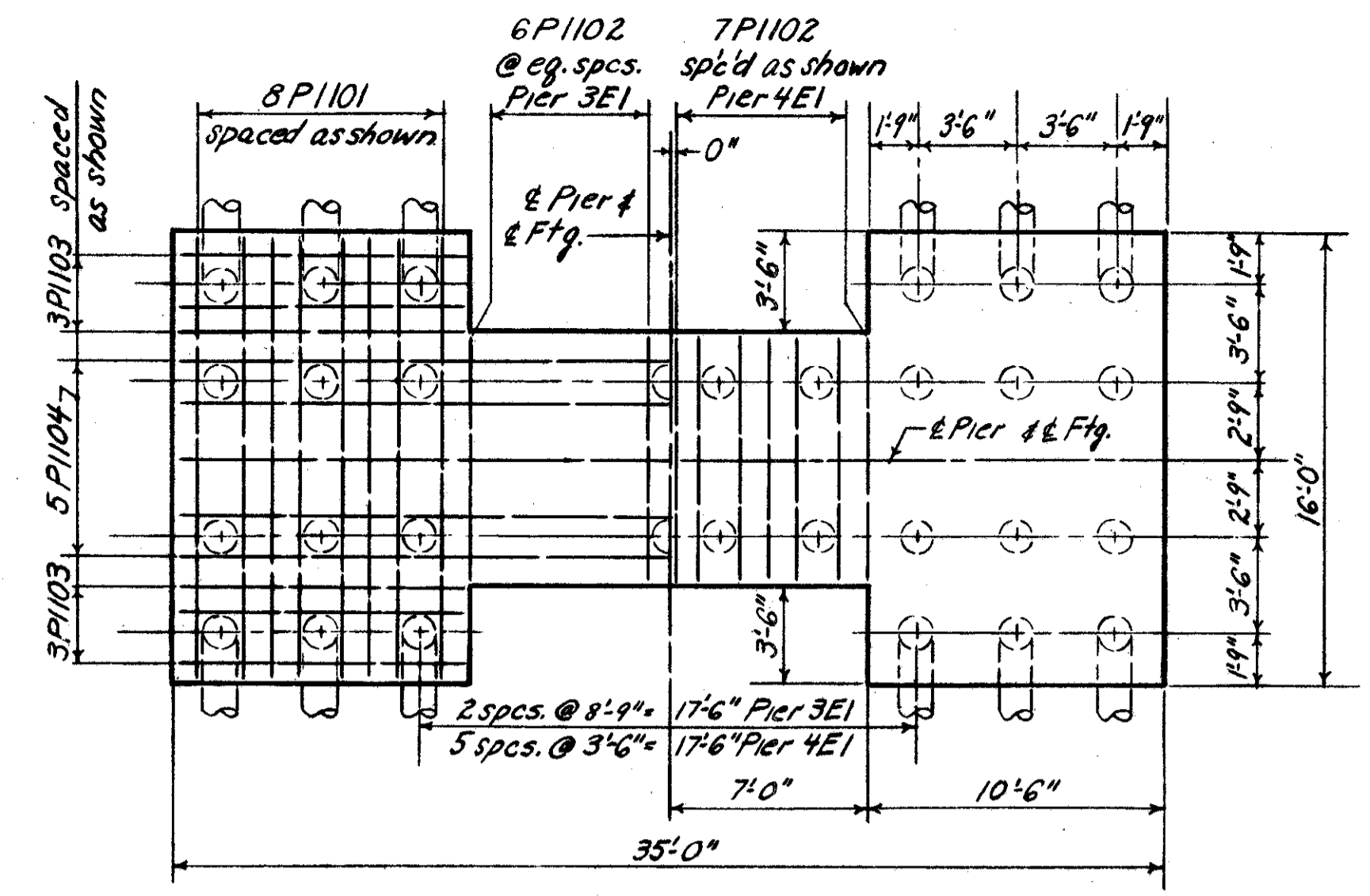
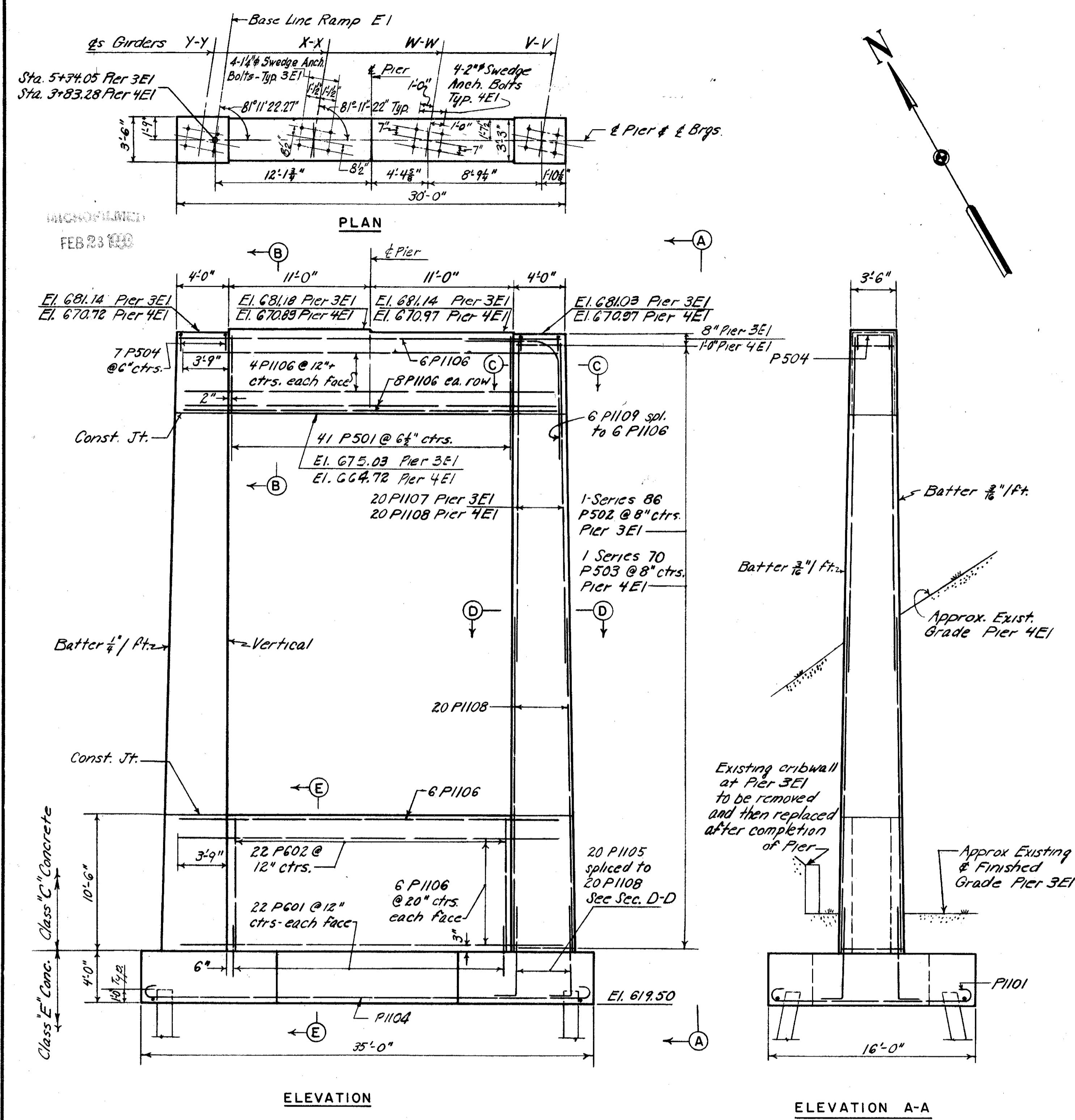
- 32 reinf. CIP Piles 14" required with an estimated vert. length of 60.5'
- All piles shall be driven to a capacity of 50 Tons per pile.
- For drainage details see Sh. 108 & 109.
- Contractor to adjust top cap reinforcing to provide clearance for swedge anchor bolts.
- For details of shoes and anchor bolts see Sh. 80.
- For replacement steel schedule see Sh. 43.
- For bar bending diagrams see Sh. 43.
- e.f. denotes each face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
 BR. NO. CUY- 42- 1750

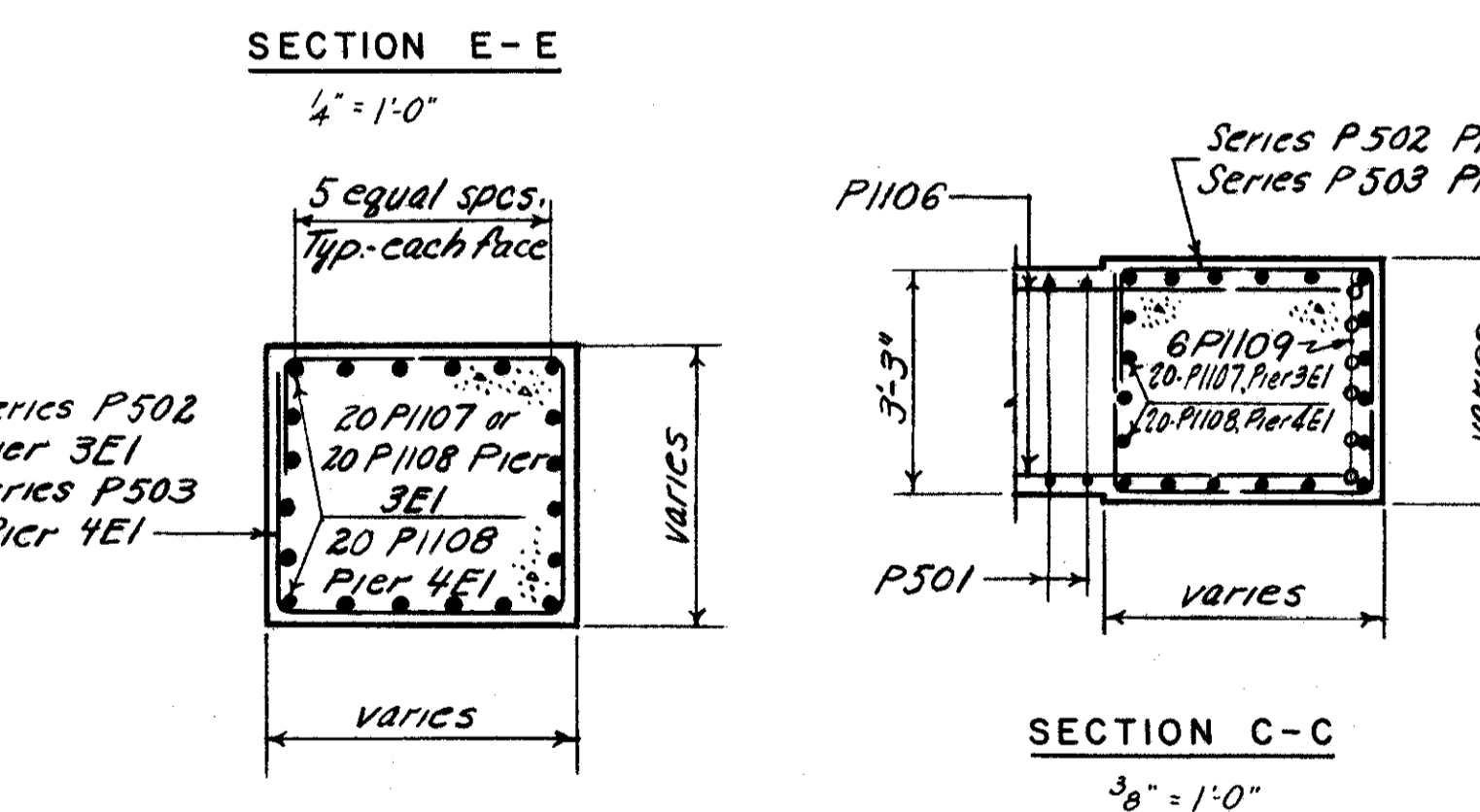
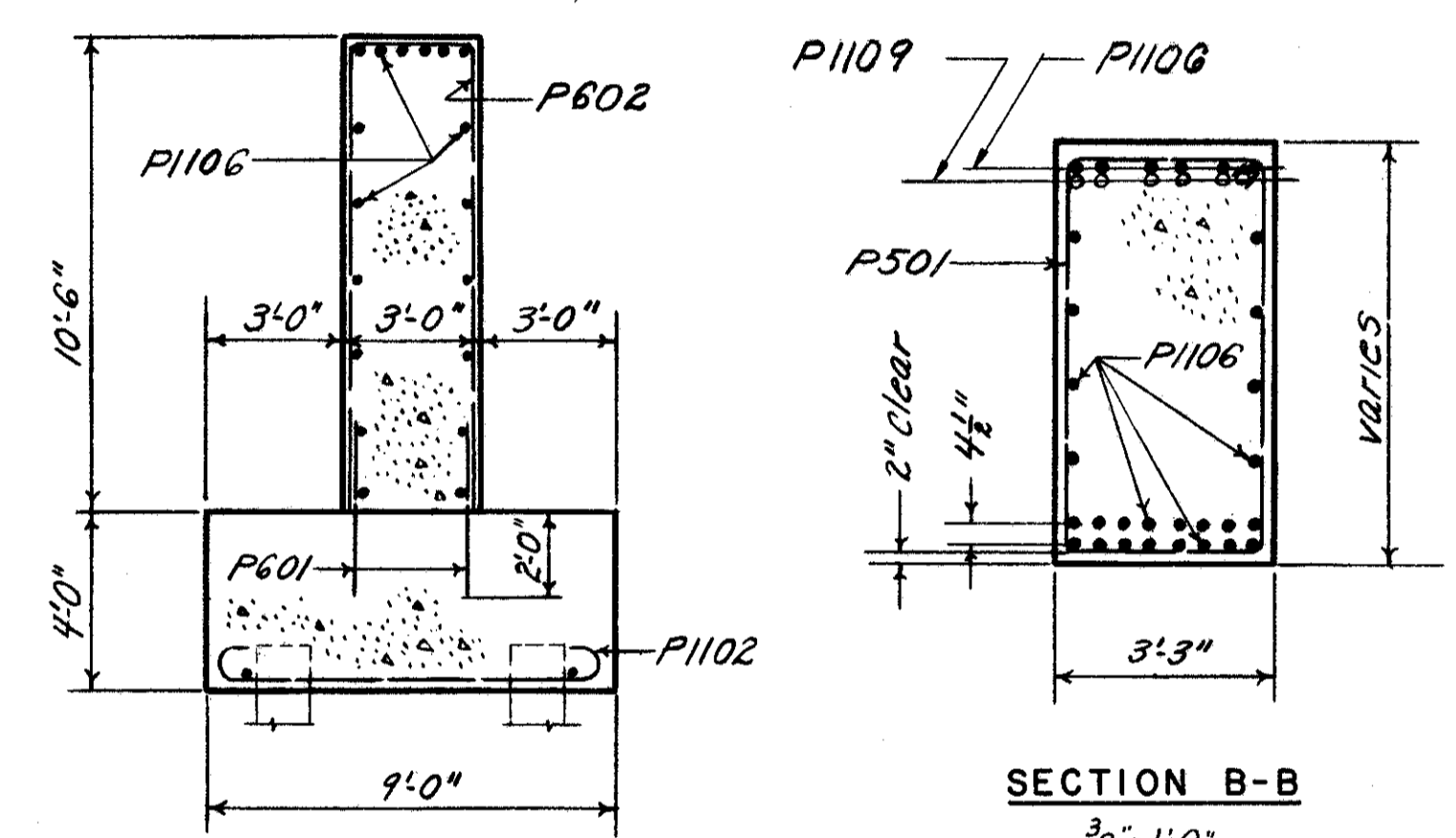
PIER 2E1
 CLEVELAND CUYAHOGA COUNTY OHIO

 SCALE: 3/8" = 1'-0" unless noted
 MADE: E.N. DATE: 12-11-56
 TRCD: M.K.S. DATE: 2-25-57
 CKD: H.R.C. DATE: 2-25-57
 HOWARD, NEEDLES, TAMMEN & BERGENDORF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET-64

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FOOTING PLAN
Footing dimensions, pile spacing, & reinf. are sym. abt. & S



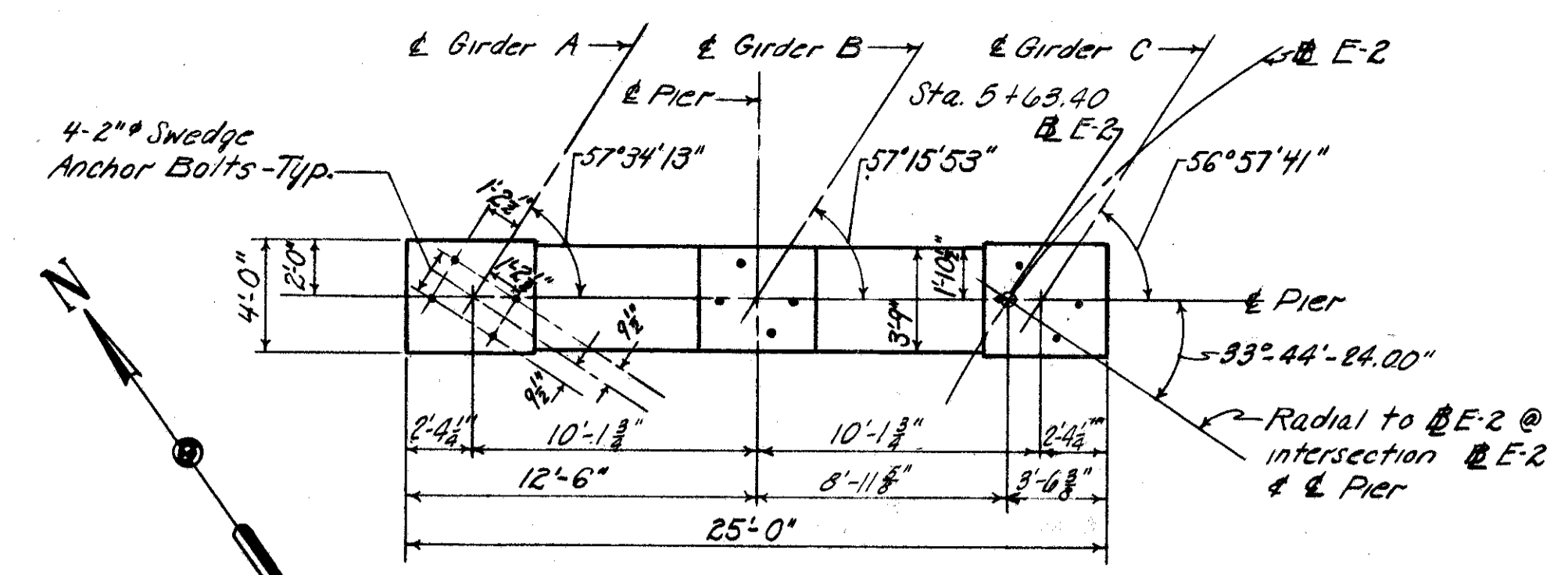
REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. MENT	WEIGHT (Lbs.)
				A	B	C	D		
PIER 3E1									
P501	41	17'-10"	109	2'-11"	5'-8"				763
P502	136	15'-4 7/8 21'-2"	136	3'-8 7/8 4'-10 1/2	3'-2 1/4 4'-1 1/2	1'-7"			3267
P504	14	5'-0"	105	3'-0"	1'-0"				73
P601	44	4'-0"	57r						264
P602	22	23'-4"	105	2'-8"	10'-4"				771
P1101	16	18'-10"	100	15'-8"					1601
P1102	12	11'-10"	100	8'-8"					754
P1103	12	13'-4"	100	10'-2"					850
P1104	5	37'-10"	100	3'-4'-8"					1005
P1105	40	8'-10"	104	7'-3"	1'-7"				1877
P1106	48	29'-6"	57r						7523
P1107	40	35'-6"	57r						7544
P1108	40	25'-6"	57r						5419
P1109	12	15'-9"	124	7'-4"	9'-3"	2'-0"			1004
									Total = 32,715
PIER 4E1									
P501	41	17'-10"	109	2'-11"	5'-8"				763
P503	136	15'-4 7/8 21'-1"	136	3'-8 7/8 4'-7 3/4	3'-2 1/4 4'-7 3/4	1'-7"			2586
P504	14	5'-0"	105	3'-0"	1'-0"				73
P601	44	4'-0"	57r						264
P602	22	23'-4"	105	2'-8"	10'-4"				771
P1101	16	18'-10"	100	15'-8"					1601
P1102	13	11'-10"	100	8'-8"					817
P1103	12	13'-4"	100	10'-2"					850
P1104	5	37'-10"	100	3'-4'-8"					1005
P1105	40	8'-10"	104	7'-3"	1'-7"				1877
P1106	48	29'-6"	57r						7523
P1108	40	25'-6"	57r						10839
P1109	12	15'-9"	124	7'-4"	9'-3"	2'-0"			1004
									Total = 28,973

Piers 3E1 & 4E1 are sym. abt. & S except as noted
Top of cap shown for Pier 3E1

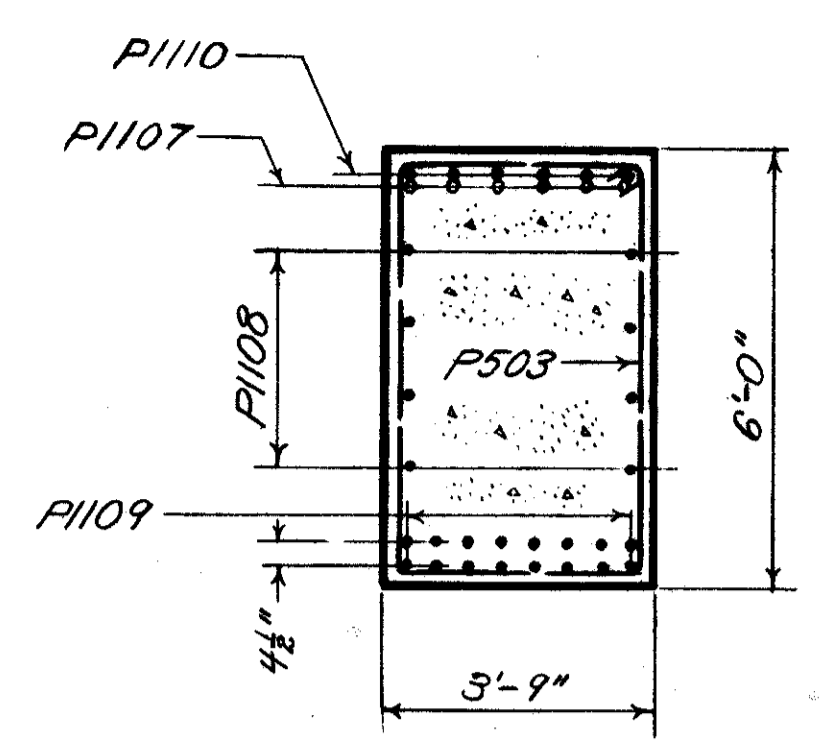
NOTES:
Piers 3E1 & 4E1 are similar except as noted
All piles are 14" cast in place reinf. conc. piles - 50 T capacity
Battered piles are battered 2 on 12
Pier 3E1 - 26 piles - average estimated vertical length = 60'
Pier 4E1 - 32 piles - average estimated vertical length = 60'
Contractor to adjust top cap reinf. to clear drilled holes for swedge anchor bolts.
For shoe & anchor bolt details see Sh. 89.
For Replacement Steel Schedule see Sh. 43.
For Bar Bending Diagrams see Sh. 43.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
PIERS 3E1 & 4E1
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: 1/4" = 1'-0" 1/8" = 1'-0"
MADE S.P. DATE 2-25-57
TRCD N.R.K. DATE 2-25-57
CKD H.H.C. DATE 2-26-57
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-65

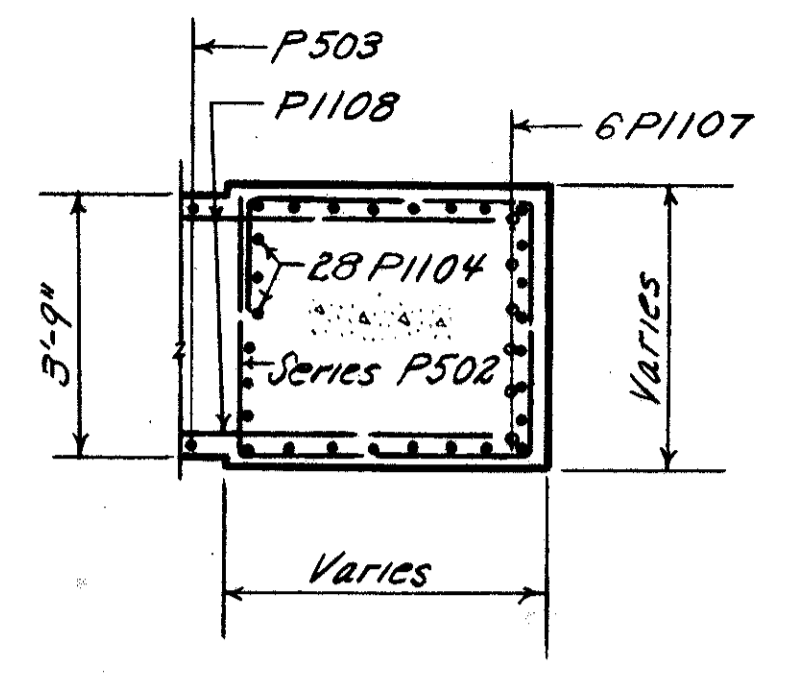
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



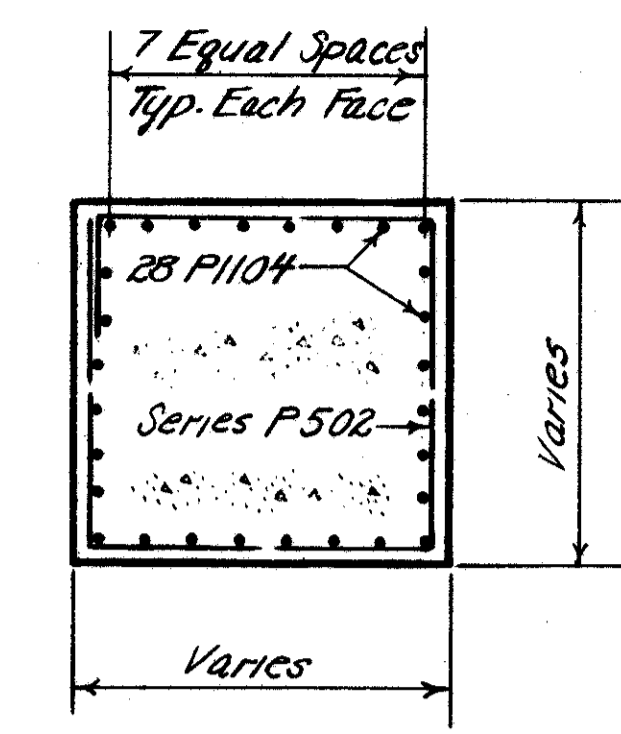
PLAN



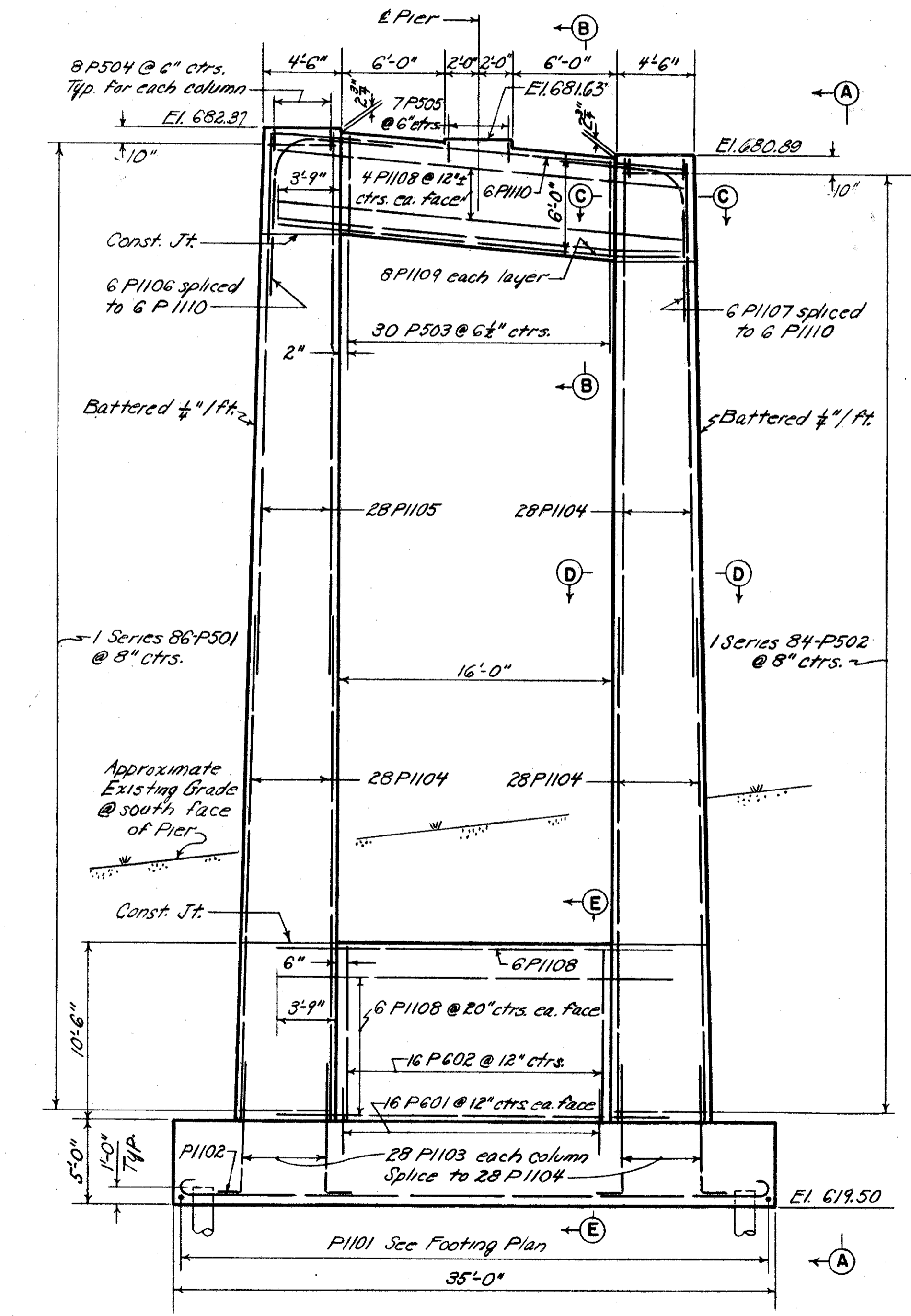
SECTION B-B
3/8" = 1'-0"



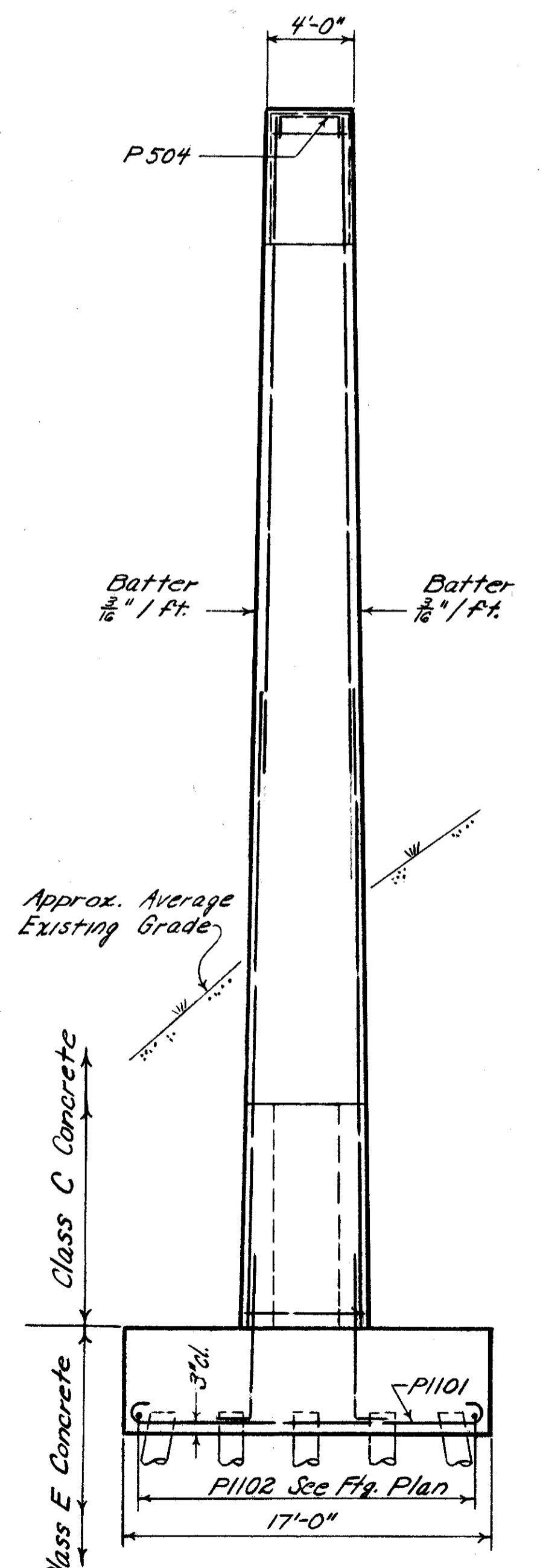
SECTION C-C
3/8" = 1'-0"



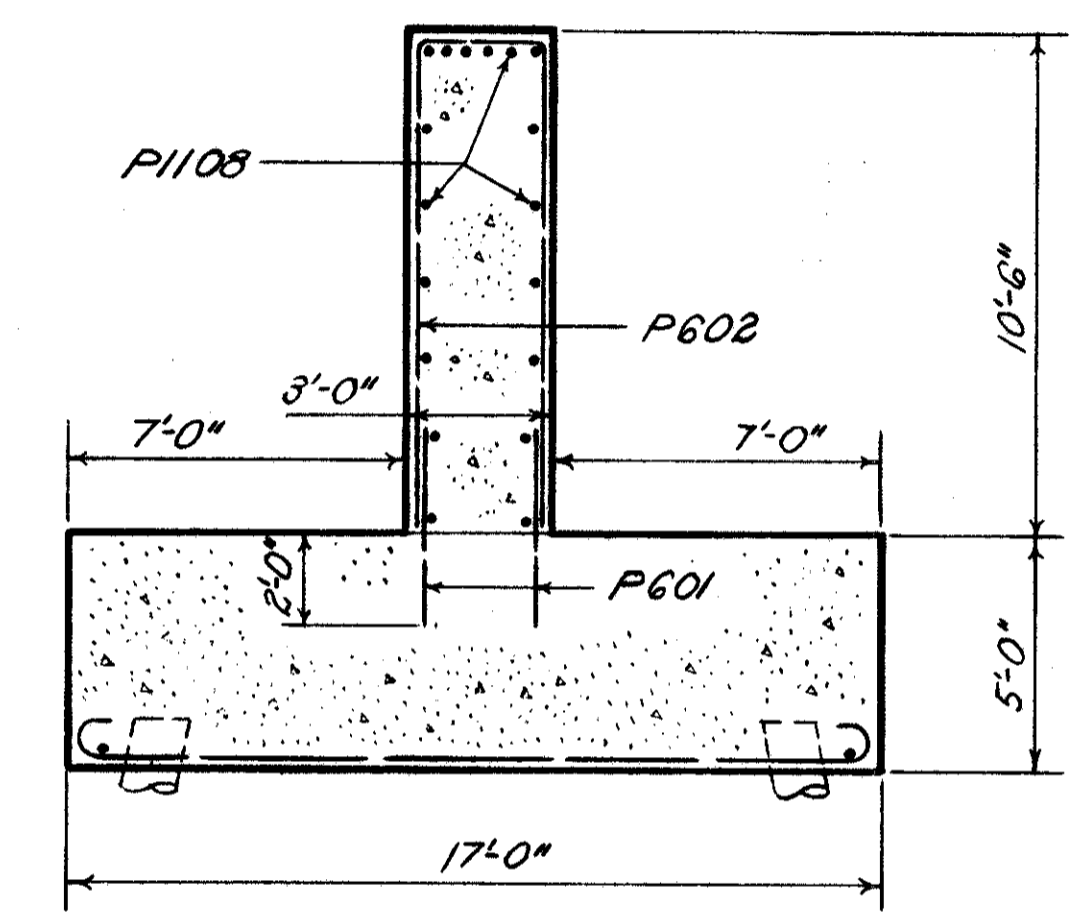
SECTION D-D
3/8" = 1'-0"



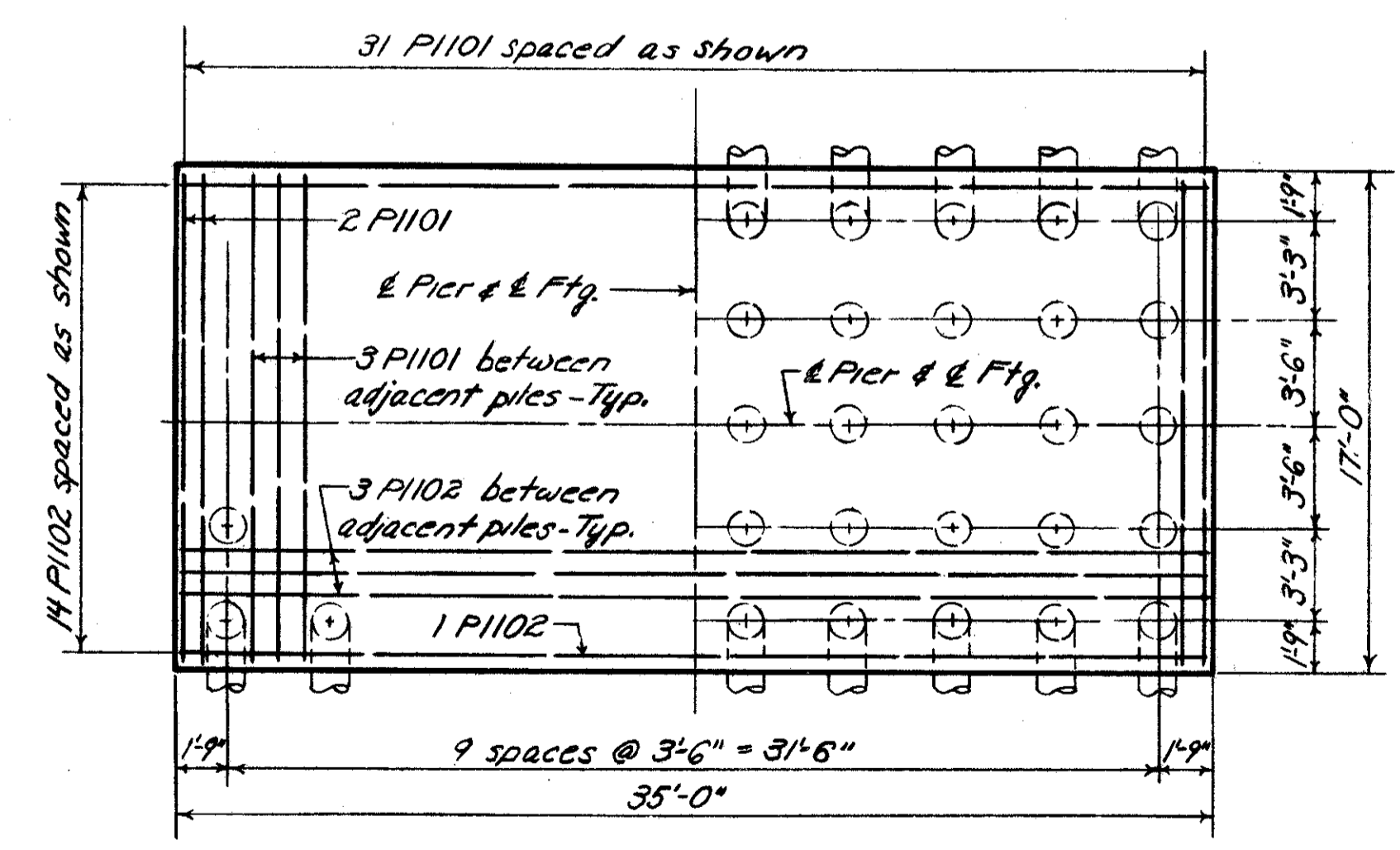
ELEVATION



ELEVATION A-A



SECTION E-E
4" = 1'-0"



FOOTING PLAN

Ftg. dimensions, pile spacing, & reinf. are sym. abt. E-S

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR.	WEIGHT (Lbs.)
				A	B	C	D		
P501	Series 86	17'-4" to 23'-3"	136	4 1/2" x 5 1/2"	3'-4" x 5'-5"	1'-7"		A-0-0 3/8"	1820
P502	Series 84	17'-4" to 23'-3"	136	4 1/2" x 5 1/2"	3'-4" x 5'-5"	1'-7"		B-0-0 3/8"	1770
P503	30	18'-10"	109	3'-5"	5'-8"				589
P504	16	5'-3"	105	3'-3"	1'-0"				88
P505	7	5'-0"	105	3'-0"	1'-0"				37
P601	32	4'-0"	Str.						192
P602	16	23'-4"	105	2'-8"	10'-4"				561
P1101	31	19'-10"	100	16'-8"					3267
P1102	14	37'-10"	100	34'-8"					2814
P1103	56	9'-10"	104	8'-3"	1'-7"				2926
P1104	84	30'-0"	Str.						13389
P1105	28	31'-3"	Str.						4649
P1106	6	16'-2"	124	3/8"	9'-6"	7'-8"	2'-0"		515
P1107	6	15'-9"	125	1 1/8"	8'-9"	7'-8"	2'-0"		502
P1108	26	23'-6"	Str.						3246
P1109	16	23'-6"	108	19'-9"	3'-9"	0'-4"			1998
P1110	6	24'-6"	108	23'-3"	1'-3"	0'-1 1/2"			781
									Total = 39,444

NOTES:
50-14" cast in place reinforced concrete piles-50 T capacity
Battered piles are battered 2 on 12
Estimated average vertical pile length = 60'
Contractor to adjust top cap reinf. to clear drilled holes for swedge anchor bolts
For drainage details see Sh. 108 & 109
For shoe & anchor bolt details see Sh. 89
For replacement steel schedule see Sh. 43
For bar bending diagrams see Sh. 43

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 2E2

CLEVELAND CUYAHOGA COUNTY OHIO

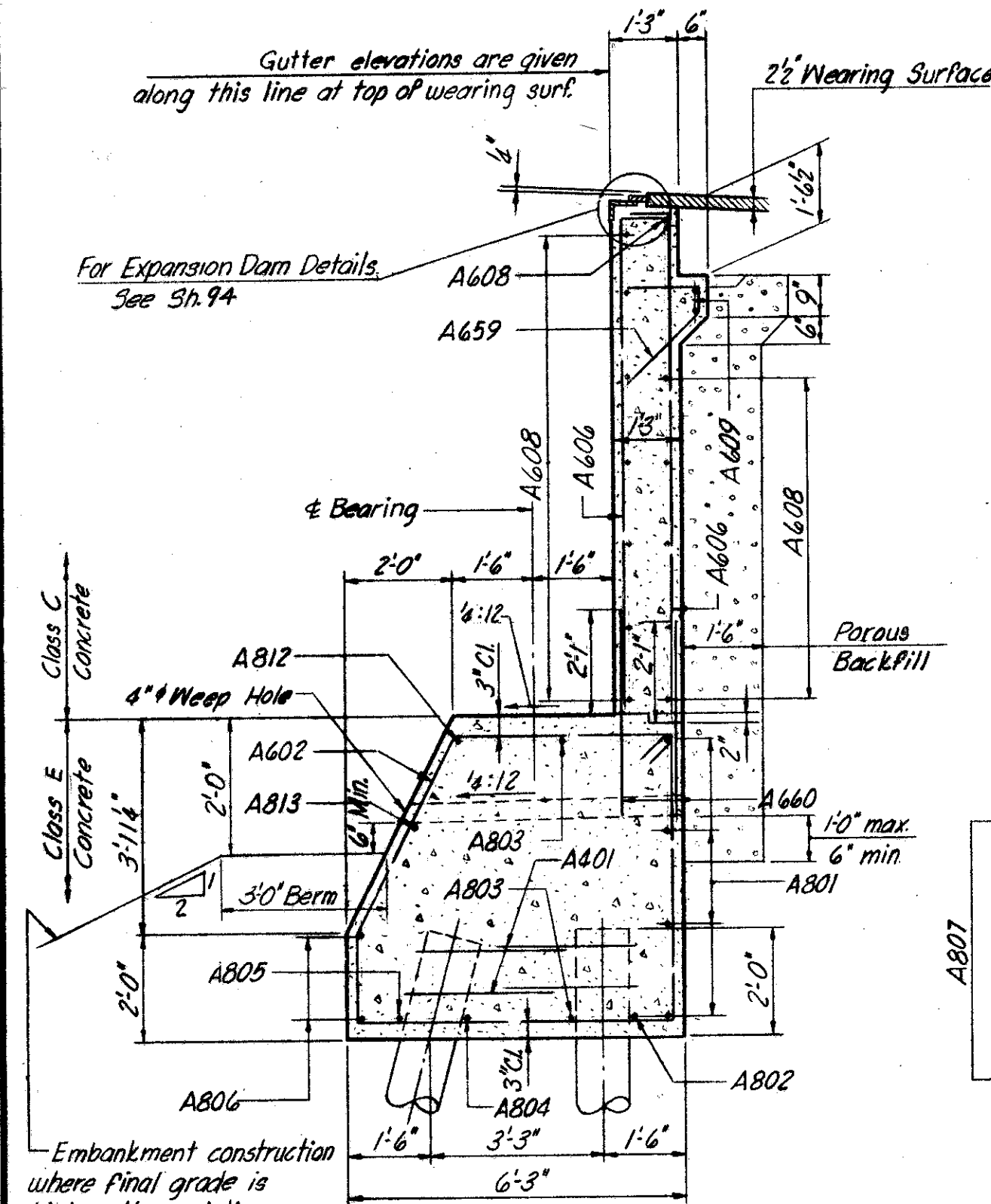
SCALE 3/8" = 1'-0" UNLESS NOTED
MADE C.E. DATE 12-13-56
TRCD N.R.K. DATE 2-27-57
CHK H.N.C. DATE 2-6-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-67

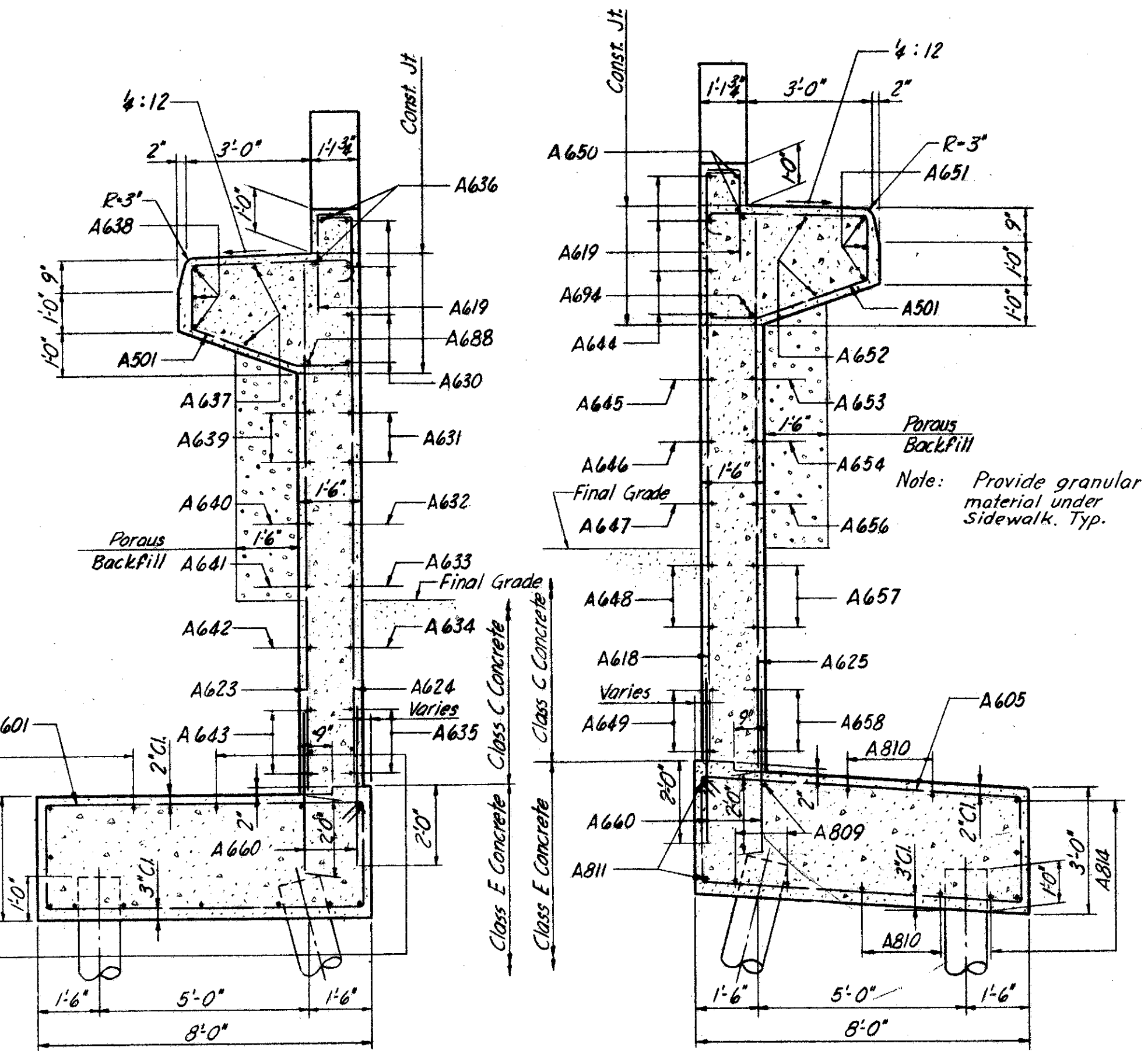
Pier is symmetrical abt. E-S except as shown

MICROFILMED
FEB 23 1983

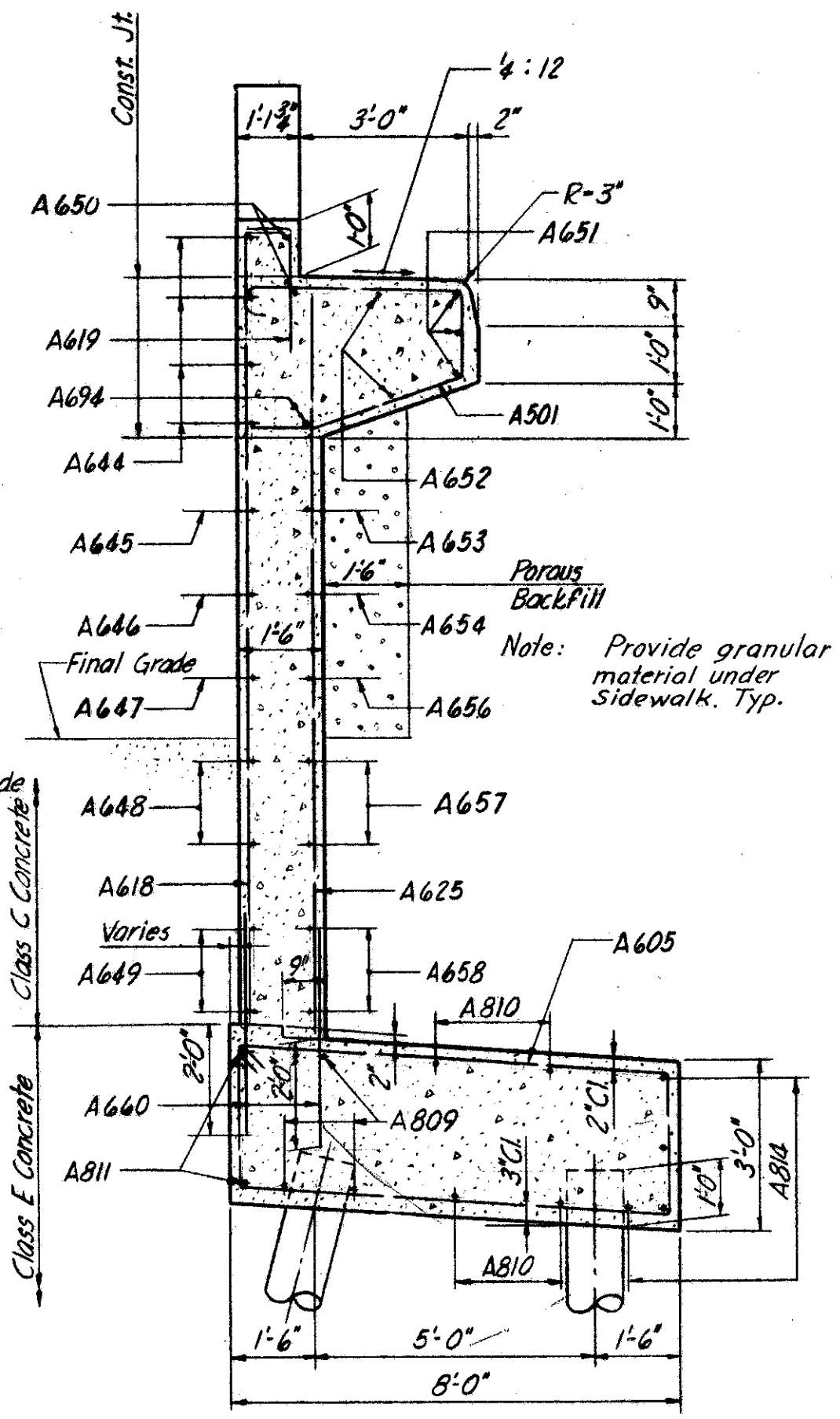
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



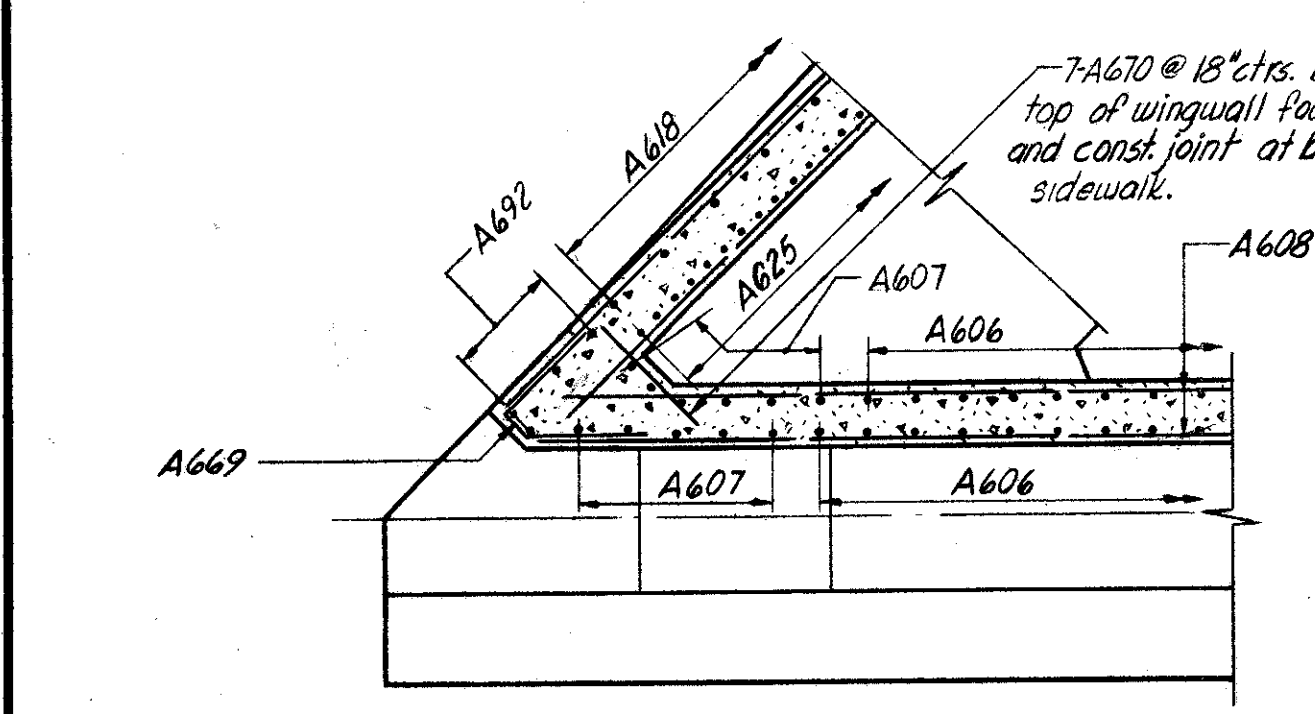
SECTION C-C
3/8" = 1'-0"



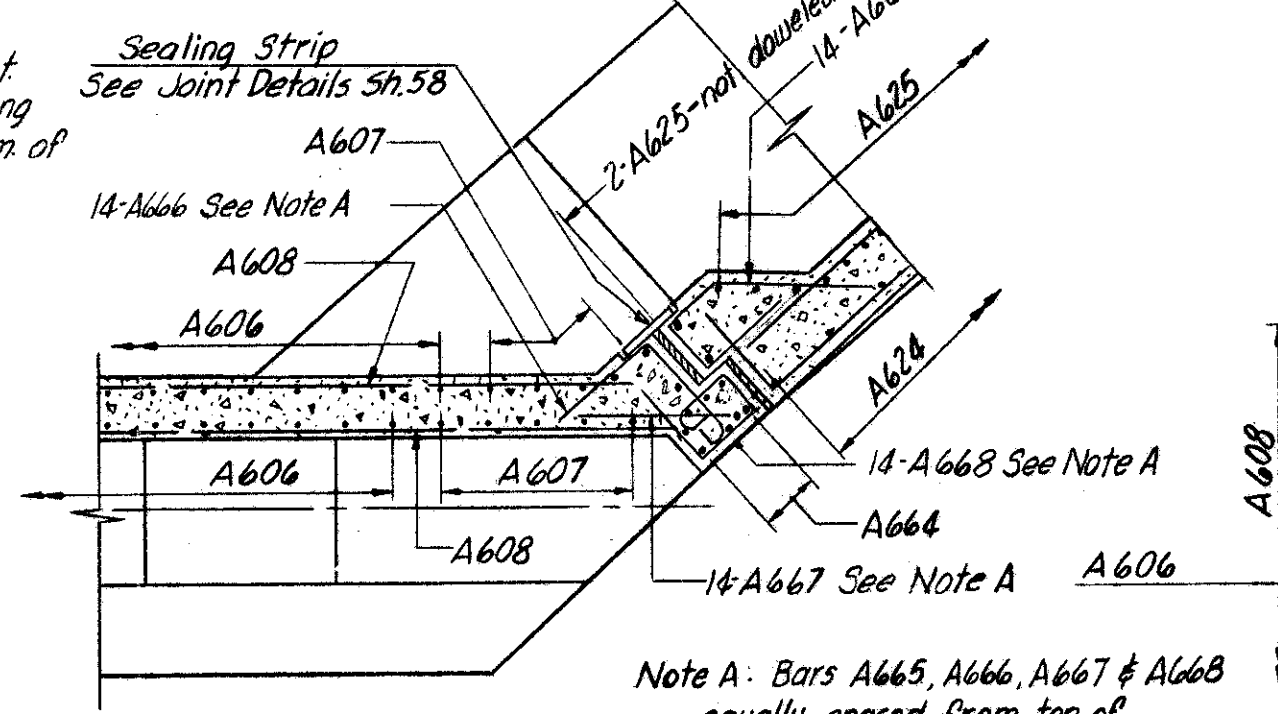
SECTION D-D
3/8" = 1'-0"



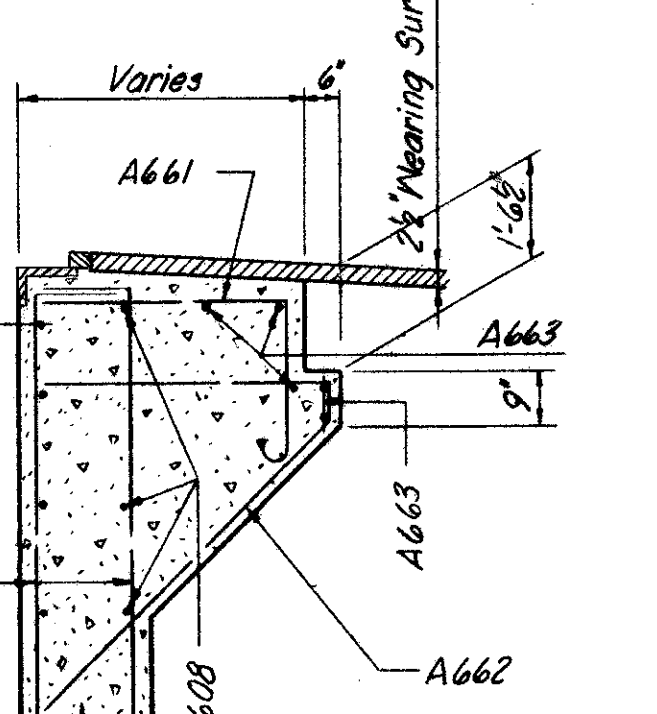
SECTION E-E
3/8" = 1'-0"



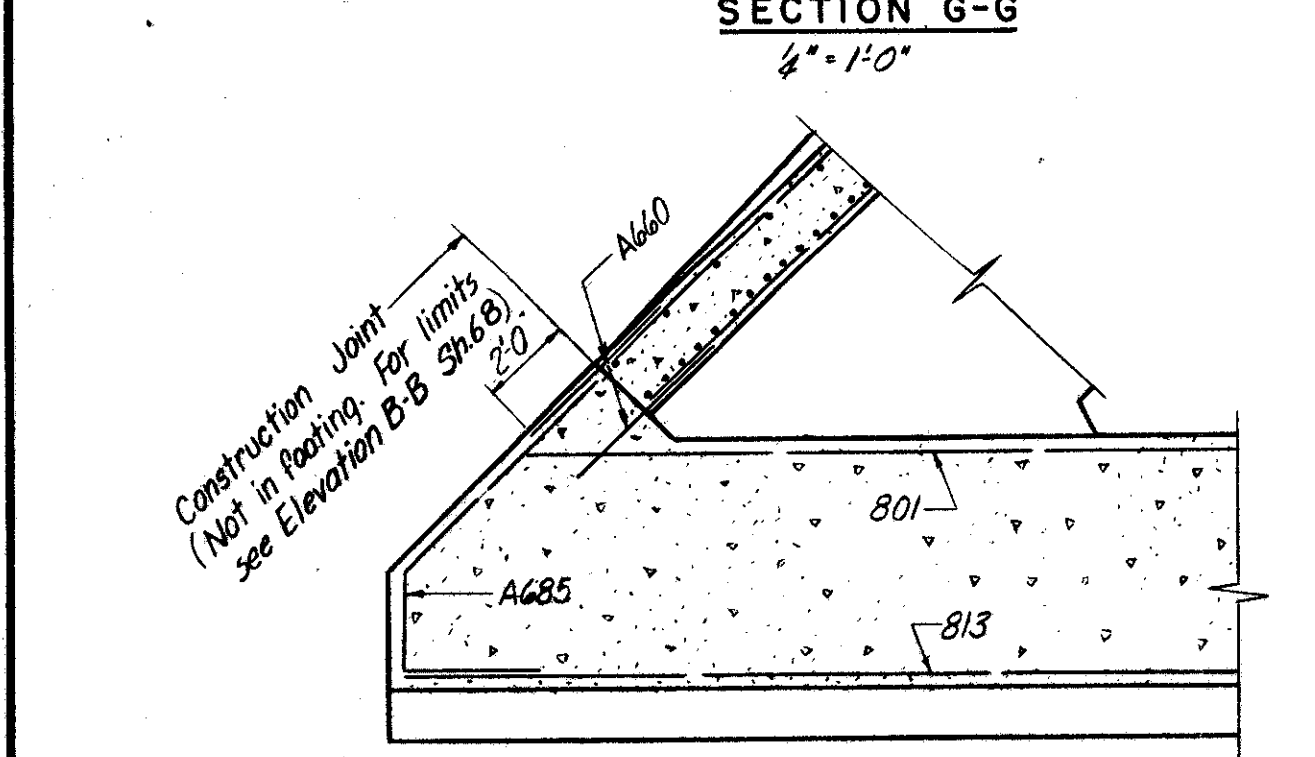
SECTION G-G
1/2" = 1'-0"



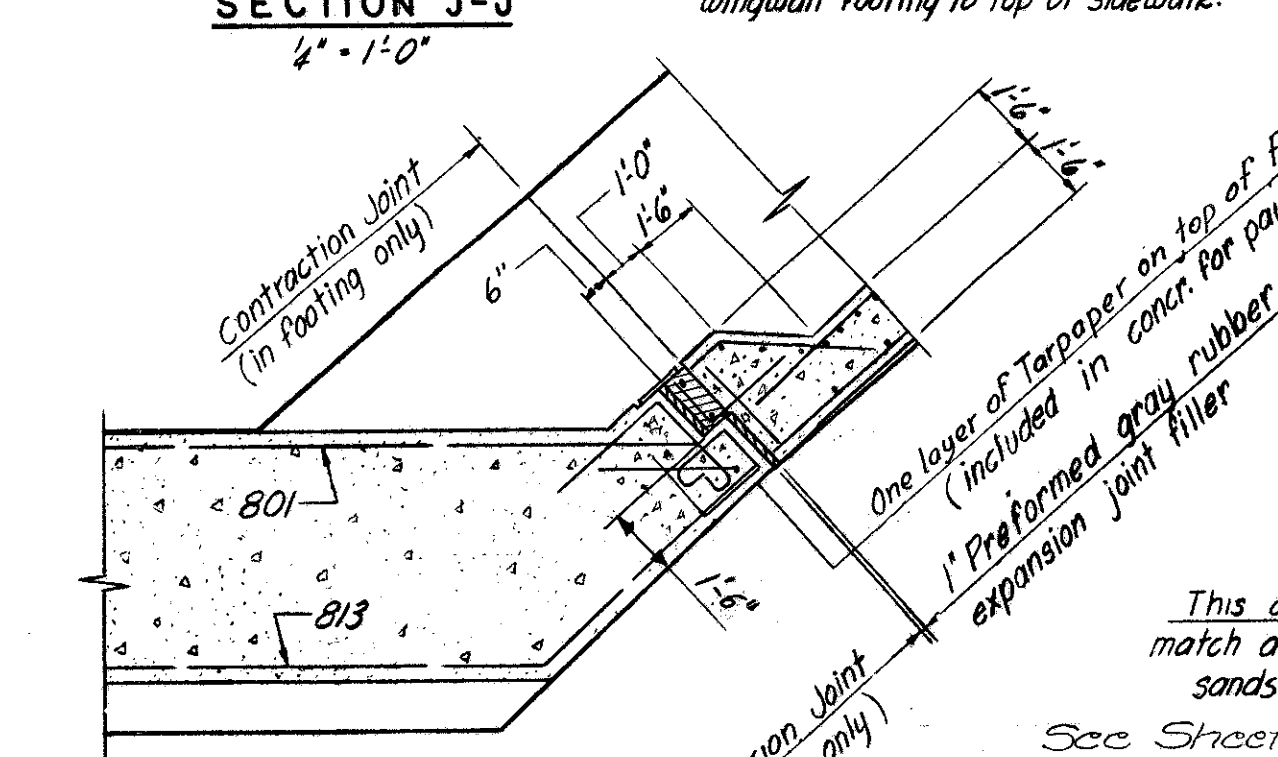
SECTION J-J
1/2" = 1'-0"



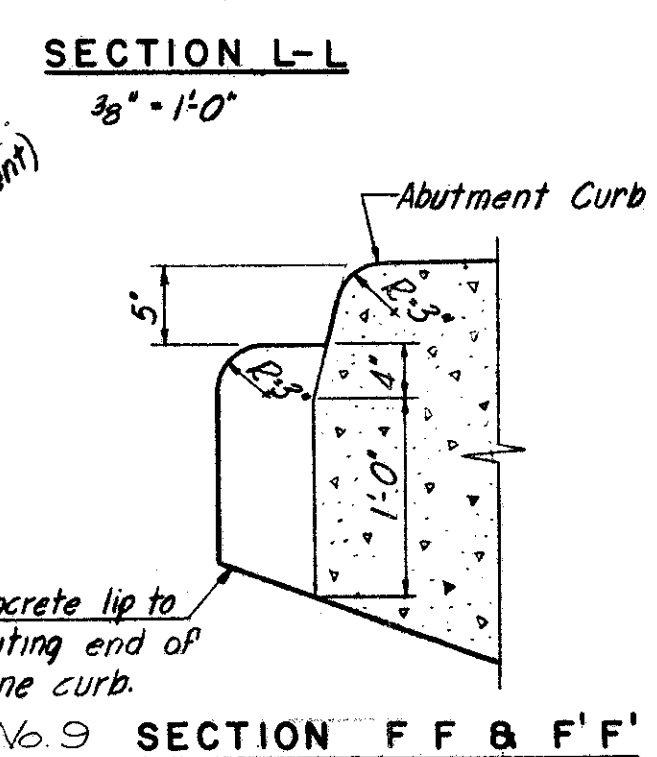
SECTION L-L
3/8" = 1'-0"



SECTION H-H
1/2" = 1'-0"



SECTION K-K
1/2" = 1'-0"



SECTION F-F & F'-F'
1" = 1'-0"

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. (Lbs.)	WEIGHT (Lbs.)
				A	B	C	D		
A401	24	8'-1"	123	0'-8"	3'-0"				130
A402	24	4'-8"	105	2'-8"	1'-0"				75
A501	42	9'-10"	127	3'-9"	4'-6"	2'-8"	1'-4"		491
A502	1	7'-0"	127	2'-4"	4'-6"	1'-3"	1'-4"		7
A503	1	6'-0"	105	2'-0"	2'-0"				6
A504	1	5'-3"	105	1'-3"	2'-0"				5
A505	2	6'-8"	103	3'-9"	2'-0"				13
A601	36	21'-2"	109	2'-7"	7'-8"				1145
A602	18	22'-0"	126	4'-3"	3'-11"	5'-6"	5'-11"		595
A603	1 Series 10	8'-7" to 17'-7"	135	2'-7"	3'-0" to 7'-6"	5/8"	B-6"		197
A604	1 Series 12	12'-7" to 23'-7"	135	2'-7"	5'-0" to 10'-6"	5/8"	B-6"		326
A605	9	21'-2"	131	2'-7"	7'-8"				286
A606	2 Series 30	11'-4" to 11'-7"	104	0'-11"	10'-3" to 10'-6"		1/8"		1033
A607	22	11'-3"	Str.						372
A608	13	39'-6"	Str.						771
A609	2	29'-9"	Str.						89
A610	1	7'-4"	104	0'-10"	6'-6"				11
A611	1	8'-7"	104	0'-10"	7'-3"				12
A612	1	9'-1"	104	0'-10"	8'-3"				14
A613	1	10'-7"	104	0'-10"	9'-9"				16
A614	1 Series 4	4'-9" to 7'-0"	Str.					9"	35
A615	2 Series 4	4'-7" to 6'-1"	104	0'-10"	3'-3" to 5'-3"			8"	61
A616	3	18'-7"	104	0'-10"	17'-9"				84
A617	6	6'-1"	104	0'-10"	5'-3"				55
A618	5	16'-6"	104	0'-10"	15'-8"				124
A619	20	3'-7"	104	0'-10"	2'-9"				108
A620	1 Series 4	5'-9" to 8'-0"	Str.					9"	41
A621	2	11'-0"	Str.						33
A622	3	17'-7"	104	0'-10"	16'-9"				79
A623	27	13'-6"	Str.						547
A624	1 Series 13	15'-4" to 16'-5"	104	0'-10"	14'-6" to 15'-7"			11/8"	310
A625	39	14'-0"	Str.						820
A626	1	11'-10"	104	0'-10"	11'-0"				18
A627	1	10'-4"	104	0'-10"	9'-6"				16
A628	1	9'-8"	104	0'-10"	8'-6"				14
A629	1	8'-4"	104	0'-10"	7'-6"				13
A630	4	28'-3"	137	18'-9"	7'-3"	9'-9"	2'-3"		170
A631	2	31'-3"	137	18'-9"	10'-3"	9'-9"	2'-3"		94
A632	1	30'-0"	137	18'-9"	9'-0"	9'-9"	2'-3"		45
A633	1	27'-0"	137	18'-9"	6'-0"	9'-9"	2'-3"		41
A634	1	24'-3"	137	18'-9"	3'-3"	9'-9"	2'-3"		36
A635	3	23'-3"	137	18'-9"	2'-3"	9'-9"	2'-3"		105
A636	2	26'-7"	133	18'-9"	7'-0"	10'-7"			80
A637	2	28'-8"	133	19'-8"	9'-0"	12'-0"			86
A638	3	27'-8"	133	19'-8"	8'-0"	13'-6"			125
A639	2	30'-3"	133	18'-9"	11'-6"	10'-11"			91
A640	1	29'-1"	133	18'-9"	10'-4"	10'-11"			44
A641	1	25'-5"	133	18'-9"	6'-8"	10'-11"			38
A642	1	22'-4"	133	18'-9"	2'-7"	10'-11"			34
A643	3	21'-3"	133	18'-9"	2'-6"	10'-11"			96
A644	4	14'-9"	133	7'-6"	7'-3"	9'-9"			89
A645	1	18'-9"	133	10'-6"	8'-3"	9'-9"			28
A646	1	17'-9"	133	10'-6"	7'-3"	9'-9"			27
A647	1	15'-0"	133	10'-6"	4'-6"	9'-9"			23
A648	2	12'-9"	133	10'-6"	2'-3"	9'-9"			38
A649	2	10'-0"	133	7'-9"	2'-3"	9'-9"			30
A650	2	15'-0"	133	7'-9"	7'-3"	10'-7"			45
A651	3	14'-0"	133	6'-0"	8'-0"	13'-6"			63
A652	2	16'-0"	133	7'-0"	9'-0"	12'-0"			48
A653	1	19'-6"	133	10'-3"	9'-3"	10'-11"			29
A654	1	18'-6"	133	10'-3"	8'-4"	10'-11"			28
A655	6	6'-0"	133	1'-0"	5'-0"	2'-2"			54
A656	1	15'-3"	133	10'-3"	5'-0"	10'-11"			23
A657	2	12'-9"	133	10'-3"	2'-6"	10'-11"			38
A658	2	10'-3"	133	7'-9"	2'-6"	10'-11"			31
A659	28	3'-11"	130	1'-5"	0'-6"	2'-0"	1'-5"		165
A660	178	4'-0"	Str.						1069
A661	1 Series 3	6'-6" to 6'-0"	103	1'-9" to 3'-3"	2'-0"			9"	24
A662	1 Series 3	6'-0" to 9'-6"	130	2'-3" to 3'-9"	0'-6"	3'-3" to 5'-3"	2'-3" to 3'-9"	5'-10"	35
A663	5	4'-9"	100	3'-3"					36
A664	7	13'-5"	104	0'-10"	12'-7"				141

REINFORCEMENT SCHEDULE										
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. (Lbs.)	WEIGHT (Lbs.)	
				A	B	C	D			
A665	14	8'-5"	129	3'-6"	1'-4"	2'-5"	1'-2"		177	
A666	14	6'-2"	103	2'-8"	2'-9"				130	
A667	17	4'-3"	101	3'-6"					109	
A668	14	7'-9"	128	4'-3"	1'-8"	1'-2"	1'-8"		163	
A669	5	5'-10"	130	2'-6"	0'-10"	2'-6"	1'-9"		44	
A670	10	3'-6"	Str.						53	
A671	2	5'-0"	134	5'-0"	9'-9"				15	
A672	2	5'-6"	134	5'-6"	10'-7"				17	
A673	2	7'-9"	132	2'-4"	5'-5"	7'-6"	9'-9"		23	
A674	2	8'-4"	132	2'-6"	5'-10"	7'-6"	10'-7"		25	
A675	2	6'-3"	104	4'-3"	2'-0"				19	
A676	1	16'-10"	126	4'-3"	1'-4"	5'-6"	3'-4"		25	
A677	1	19'-2"	126	4'-3"	2'-6"	5'-6"	4'-6"		29	
A678	1	21'-6"	126	4'-3"	3'-8"	5'-6"	5'-8"		32	
A679	1	18'-9"	126	3'-0"	3'-11"	5'-6"	4'-11"		28	
A680	1	19'-4"	109	3'-10"	5'-6"				29	
A681	1	14'-3"	105	3'-3"	5'-6"				21	
A682	9	7'-9"	Str.						105	
A683	2	11'-9"	104	4'-0"	7'-9"				35	
A684	1	9'-5"	130	2'-0"	1'-5"	6'-0"	4'-3"		14	
A685	1	10'-4"	130	2'-0"	2'-4"	6'-0"	4'-3"		16	
A686	1	11'-2"	105	1'-2"	5'-0"				17	
A687	2	9'-6"	105	1'-2"	4'-2"				29	
A688	1	27'-8"	133	19'-8"	8'-0"	10'-11"			42	
A689	2	11'-2"	105	1'-2"	5'-0"				34	
A690	1	10'-10"	105	0'-10"	5'-0"				16	
A691	2	8'-9"	Str.						26	
A692	4	13'-2"	104	0'-10"	12'-4"				79	
A693	3	8'-10"	130	5'-0"	0'-10"	3'-0"	2'-1"		40	
A694	1	18'-6"	133	10'-6"	8'-0"	10'-11"			28	
A695	2	7'-2"	105	1'-2"	3'-0"				22	
A801	4	40'-0"	Str.						427	
A802	1	39'-0"	Str.						104	
A803	2	41'-9"	Str.						223	
A804	1	40'-6"	Str.						108	
A805	1	45'-6"	108	38'-0"	5'-4"	5'-0"			121	
A806	2	46'-2"	108	38'-6"	5'-6"	5'-3"			247	
A807	13	21'-0"	Str.						729	
A808	7	9'-9"	Str.						182	
A809	3	13'-0"	Str.						106	
A810	4	11'-9"	Str.						125	
A811	2	19'-5"	108	16'-1"	2'-4"	2'-4"			104	
A812	1	45'-6"	108	40'-6"	3'-10"	3'-6"			121	
A813	1	45'-8"	108	39'-3"	4'-9"	4'-6"			122	
A814	4	8'-9"	Str.						93	
A815	7	6'-9"	Str.						126	
									TOTAL	15419

NOTES:
For Notes, see Sh. 63
For location of Sections GC to LL, see Sh. 63

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
ABUTMENT E2 DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE EXH. DATE 12-17-56
TRCD H.G. DATE 2-1-57
CRD S.B. DATE 2-28-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-69

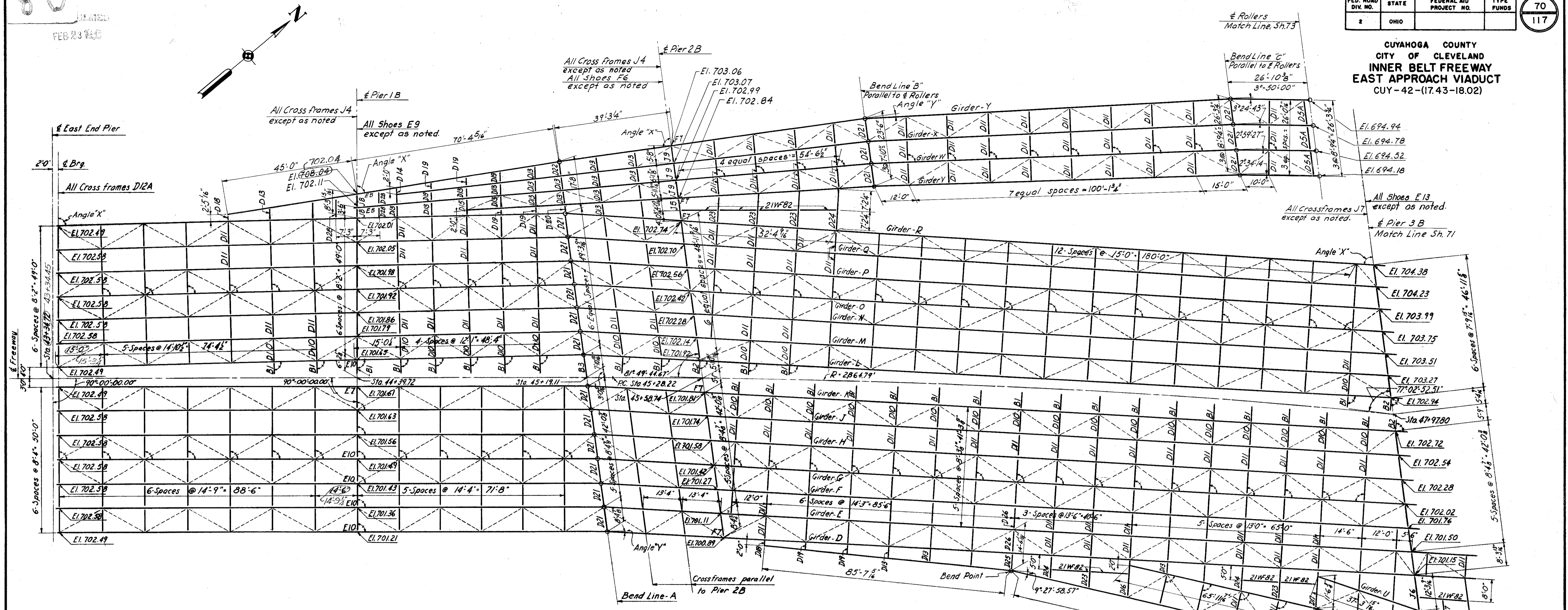
For location of Section FF See Sh. 63.
For location of Section F'F' See Sh. 66.
Section F'F' is opposite hand.

8-0
FEB 23 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

70
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN

Girder	Girder Lengths												
	East End Pier Angle X	Pier 1B Angle X	Bend Line-A Angle Y	Pier 2B Angle X	Bend Line-B Angle Y	Pier 3B Angle X	Pier IE2 Angle X	Brig East End to Pier 1B	Pier 1B to Bend Line-A	Bend Line-A to Pier 2B	Pier 2B to Pier 3B	Pier 2B to Bend Line-B	Bend Line-B to Bend Line-C
D	90°00'00"	90°00'00"	3°08'25"	79°17'57"	79°17'57"	103°33'30"	2°03'00"	86°54'	39°11 1/2"	239°1 1/8"			
E	do	do	3°09'30"	79°16'52"	79°16'52"	do	do	85°31 1/2"	39°11 1/2"	239°1 1/8"			
F	do	do	do	do	do	do	do	84°2 1/2"	do	do			
G	do	do	do	do	do	do	do	83°1 1/2"	do	do			
H	do	do	do	do	do	do	do	82°0'	do	do			
J	do	do	do	do	do	do	do	80°10 1/2"	do	do			
K	90°00'00"	90°00'00"	3°09'30"	79°16'52"	79°16'52"	103°33'30"	2°03'00"	79°9'	39°11 1/2"	239°1 1/8"			
L	88°47'21"	88°47'21"	4°19'45"	79°19'17"	79°19'17"	103°33'30"	2°03'00"	78°4 1/2"	39°11 1/2"	239°1'			
M	do	do	4°24'26"	79°14'36"	79°14'36"	do	do	77°3 1/2"	39°11 1/2"	239°1 1/8"			
N	do	do	4°29'07"	79°09'55"	79°09'55"	do	do	76°2 1/2"	39°11 1/2"	239°2 1/2"			
O	do	do	4°33'48"	79°05'14"	79°05'14"	do	do	75°1 1/2"	39°11 1/2"	239°3 3/8"			
P	do	do	4°38'29"	79°00'33"	79°00'33"	do	do	74°0 1/2"	40°0'	239°4'			
Q	do	do	4°43'10"	78°55'52"	78°55'52"	do	do	72°11 1/2"	40°0 1/2"	239°4 1/2"			
R	88°47'21"	88°47'21"	4°47'50"	78°51'12"	78°51'12"	103°33'30"	2°03'00"	71°10 1/2"	40°0'	239°5 1/2"			
S								65°18'59"					
T								64°16'59"					
U								63°01'54"					
V				85°43'34"	1°27'47"					67°2 1/2"	127°13 1/2"		
W		85°07'11"		87°19'11"	2°38'11"				110°4 1/2" & Pier 1B to & Pier 2B	67°1 1/2"	127°0 1/2"		
X				88°45'04"	3°38'49"					67°0 3/8"	126°11 1/2"		
Y		81°15'00"	0°35'04"	90°36'18"	5°04'45"					67°0 4"	126°10 3/4"		

NOTES:

Angles marked thus \angle are 90°00'00"
 Angle X is the acute angle between Girder and Bearing, except for Girder Y @ Pier 2B
 Angle Y is the right deflection angle of the Girders at Bend Lines - A & B looking east.
 Bend Points are marked thus \curvearrowright
 Lower lateral system is shown thus (ST 6 W 13.5)
 All cross frames to be type D9 except as noted.
 All dimensions given are horizontal dimensions.
 Elevations shown are back of top flange angles on girders.

U. S. ROUTE 42 RELOCATION
 INNER BELT FREEWAY
 EAST APPROACH VIADUCT
 BR. NO. CUY-42-1750
 FRAMING PLAN
 EAST END PIER TO PIER 3 B
 CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/8" = 1'-0"
 MADE PLS. DATE 1-31-57
 TRCD N.R.S. DATE 2-27-57
 CKD 12/11/57 DATE 2-27-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET-70

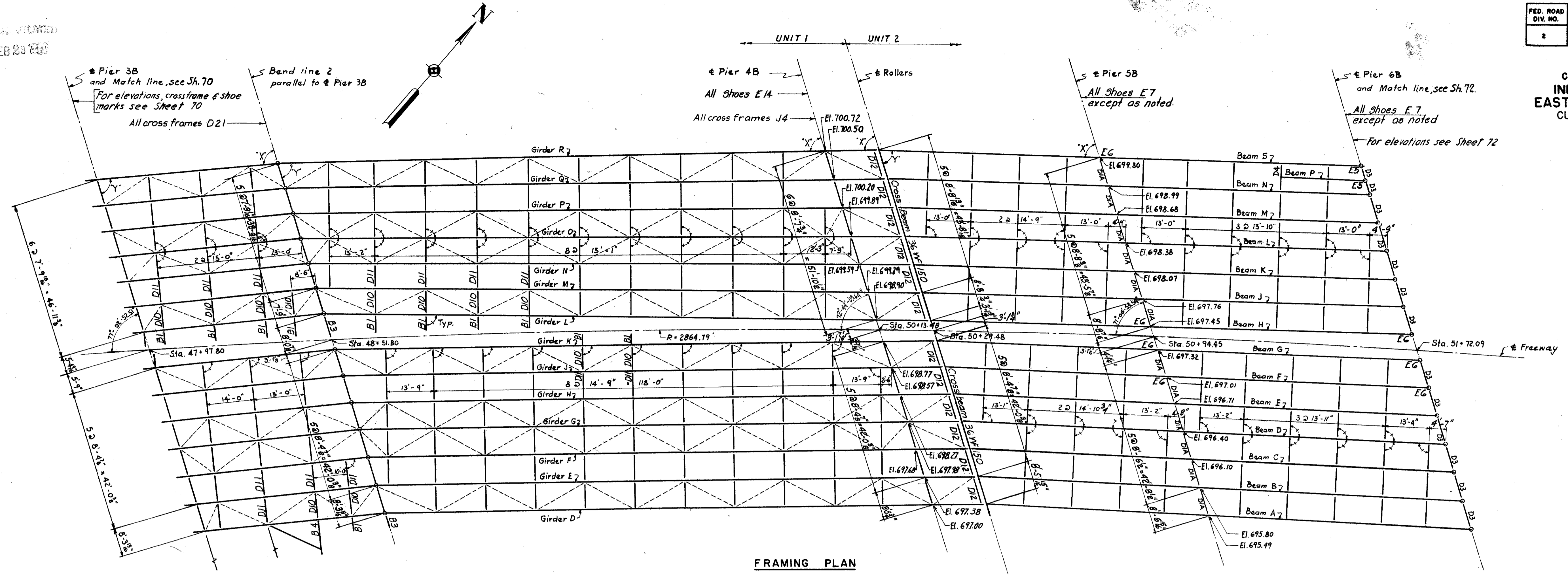
Revised 2-13-58

NOT PLANNED
FEB 23 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

71
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN

Girder	@ Pier 3B			@ Band line 2			@ Pier 4B			@ Rollers			Girder Lengths		
	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
D	79'-17'-57"	79'-17'-57"	74'-06'-48"	74'-06'-48"	74'-06'-48"	74'-06'-48"	74'-06'-48"	74'-06'-48"	53'-5 1/4"	161'-10 1/8"	15'-10 1/2"				
E	79'-16'-52"	79'-16'-52"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	53'-5 5/8"	161'-9 9/16"	15'-10 7/16"				
F															
G															
H															
J															
K	79'-16'-52"	79'-16'-52"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	74'-10'-27"	53'-5 15/16"	161'-9 9/16"	15'-10 7/16"				
L	79'-19'-17"	79'-19'-17"	72'-40'-27"	72'-40'-27"	72'-40'-27"	72'-40'-27"	72'-40'-27"	72'-40'-27"	53'-5 5/8"	163'-0 3/4"	15'-11 15/16"				
M	79'-14'-36"	79'-14'-36"	72'-58'-25"	72'-58'-25"	72'-58'-25"	72'-58'-25"	72'-58'-25"	72'-58'-25"	53'-5 5/8"	162'-9 5/8"	15'-11 5/8"				
N	79'-09'-55"	79'-09'-55"	73'-16'-27"	73'-16'-27"	73'-16'-27"	73'-16'-27"	73'-16'-27"	73'-16'-27"	53'-5 9/16"	162'-6 1/2"	15'-11 5/16"				
O	79'-05'-14"	79'-05'-14"	73'-34'-33"	73'-34'-33"	73'-34'-33"	73'-34'-33"	73'-34'-33"	73'-34'-33"	53'-5 3/4"	162'-3 7/16"	15'-11"				
P	79'-00'-33"	79'-00'-33"	73'-52'-41"	73'-52'-41"	73'-52'-41"	73'-52'-41"	73'-52'-41"	73'-52'-41"	53'-5 7/8"	162'-0 7/16"	15'-10 3/4"				
Q	78'-55'-52"	78'-55'-52"	74'-10'-54"	74'-10'-54"	74'-10'-54"	74'-10'-54"	74'-10'-54"	74'-10'-54"	53'-6 1/8"	161'-9 1/2"	15'-10 7/16"				
R	78'-51'-12"	78'-51'-12"	74'-29'-09"	74'-29'-09"	74'-29'-09"	74'-29'-09"	74'-29'-09"	74'-29'-09"	53'-6 1/4"	161'-6 5/8"	15'-10 1/8"				

Beam	@ Rollers		@ Pier 5B		Beam Lengths	
	Y	X	Y	X	@ Rollers to @ Pier 5B	@ Pier 5B to @ Pier 6B
A	70'-20'-27"	70'-20'-27"	70'-20'-27"	70'-20'-27"	65'-6 5/16"	77'-7 3/8"
B	70'-25'-00"	70'-25'-00"	70'-25'-00"	70'-25'-00"	65'-5 5/16"	77'-7 3/8"
C	70'-31'-36"	70'-31'-36"	70'-31'-36"	70'-31'-36"	65'-5 7/16"	77'-6 3/8"
D	70'-38'-12"	70'-38'-12"	70'-38'-12"	70'-38'-12"	65'-4 7/8"	77'-5 1/8"
E	70'-44'-48"	70'-44'-48"	70'-44'-48"	70'-44'-48"	65'-4 3/8"	77'-5 1/8"
F	70'-51'-28"	70'-51'-28"	70'-51'-28"	70'-51'-28"	65'-3 13/16"	77'-4 1/8"
G	70'-58'-08"	70'-58'-08"	70'-58'-08"	70'-58'-08"	65'-3 5/16"	77'-4 1/8"
H	71'-43'-17"	71'-43'-17"	71'-43'-17"	71'-43'-17"	64'-11 13/16"	76'-11 15/16"
J	71'-41'-32"	71'-41'-32"	71'-41'-32"	71'-41'-32"	64'-11 5/16"	77'-0 1/8"
K	71'-39'-47"	71'-39'-47"	71'-39'-47"	71'-39'-47"	65'-0 1/16"	77'-0 1/4"
L	71'-38'-02"	71'-38'-02"	71'-38'-02"	71'-38'-02"	65'-0 3/16"	77'-0 7/16"
M	71'-36'-17"	71'-36'-17"	71'-36'-17"	71'-36'-17"	65'-0 3/8"	77'-0 9/16"
N	71'-34'-52"	71'-34'-52"	71'-34'-52"	71'-34'-52"	65'-0 1/2"	77'-0 3/4"
P						See SH. 80
S	71'-32'-47"	71'-32'-47"	71'-32'-47"	71'-32'-47"	65'-0 5/8"	77'-0 5/8"

NOTES:
 Angles marked thus \sphericalangle are 90°-00'-00"
 "X" and "Y" are the acute angles between @ Girder or @ Beam and @ bearing or bend line or @ rollers
 For beam details see Sh. 80
 For girder details see Shs. 74, 75, 76, 77
 Elevations shown are to top of top flange on rolled beams and to back of top flange angles on girders.
 - Indicates change in beam or girder direction.
 All beam span (Unit 2) cross frames shown are type D1 except as noted.
 Beam and Girder lengths are horizontal dimensions.
 Lower lateral system is shown thus -----
 All girder span (Unit 1) cross frames shown are type D9 except as noted.

U. S. ROUTE 42 RELOCATION
 INNER BELT FREEWAY
 EAST APPROACH VIADUCT
 BR. NO. CUY-42-1750

FRAMING PLAN-PIERS 3B TO 6B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
 MADE J.A.E. DATE 12-21-56
 TRCD H.A.K. DATE 2-28-57
 CHD H.B.W. DATE 2-22-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2) B SHEET-71

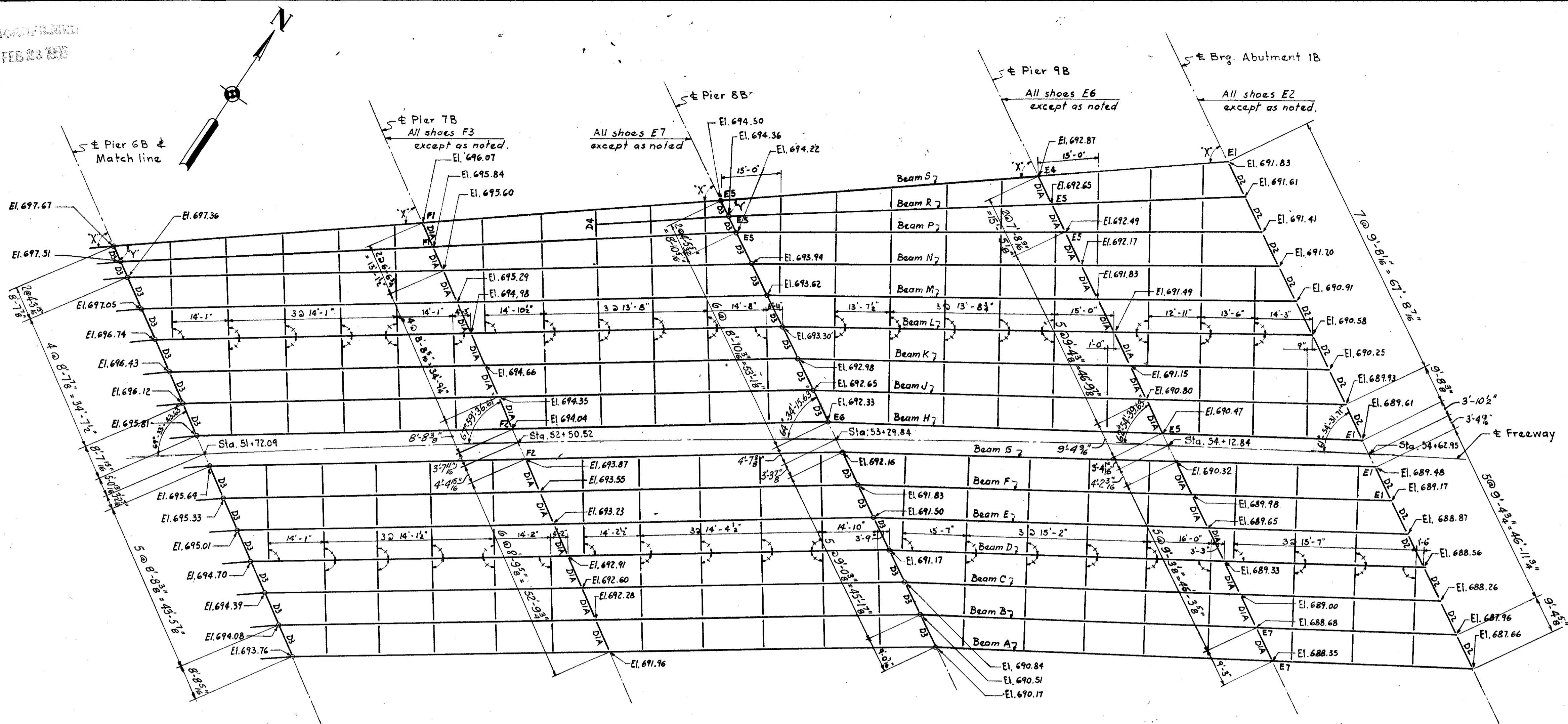
Revised 2-13-58

RECORDED
FEB 23 1956

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

72
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN
(Portion of Unit 2)

NOTES:
 Angles marked thus \sphericalangle are 90°-00'-00".
 "X" and "Y" are the acute angles between a beam and bearing.
 For beam details see Sh. 80.
 Elevations shown are to top of flanges on rolled beams.
 → Indicates change in beam direction
 All cross frames shown are Type D1 except as noted.
 Beam lengths are horizontal dimensions.

Beam	@ Pier 6B		@ Pier 7B		@ Pier 8B		@ Pier 9B		@ Abutment		Beam Lengths			
	"X"	"Y"	"X"	"Y"	"X"	"Y"	"X"	"Y"	"X"	"Y"	@ Pier 6B to @ Pier 7B	@ Pier 7B to @ Pier 8B	@ Pier 8B to @ Pier 9B	@ Pier 9B to @ Brq. Abut.
A	70°-20'-27"	67°-32'-10"	67°-32'-10"	65°-42'-00"	62°-22'-53"	62°-22'-53"	62°-22'-53"	62°-22'-53"	79°-1°-16"	81°-1°-16"	84°-0°-16"	50°-1°-16"		
B	70°-25'-00"	67°-36'-21"	67°-36'-21"	65°-46'-11"	62°-31'-07"	62°-31'-07"	62°-31'-07"	62°-31'-07"	79°-0°-8"	80°-9°-16"	83°-10°-34"	50°-0°-8"		
C	70°-31'-36"	67°-40'-33"	67°-40'-33"	65°-50'-23"	62°-39'-22"	62°-39'-22"	62°-39'-22"	62°-39'-22"	79°-0°-8"	80°-4°-16"	83°-9°-16"	50°-0°-8"		
D	70°-38'-12"	67°-44'-46"	67°-44'-46"	65°-54'-36"	62°-47'-38"	62°-47'-38"	62°-47'-38"	62°-47'-38"	78°-11°-78"	80°-0°-16"	83°-8°-16"	49°-11°-4"		
E	70°-44'-48"	67°-49'-00"	67°-49'-00"	65°-58'-50"	62°-55'-50"	62°-55'-50"	62°-55'-50"	62°-55'-50"	78°-11°-76"	79°-8°-16"	83°-7°-16"	49°-10°-16"		
F	70°-51'-25"	67°-53'-16"	67°-53'-16"	66°-03'-06"	63°-04'-14"	63°-04'-14"	63°-04'-14"	63°-04'-14"	78°-10°-16"	79°-4°-16"	83°-5°-16"	49°-9°-16"		
G	70°-58'-03"	67°-57'-33"	67°-57'-33"	66°-07'-23"	63°-12'-34"	63°-12'-34"	63°-12'-34"	63°-12'-34"	78°-10°-16"	79°-0°-16"	83°-4°-16"	49°-9°-16"		
H	71°-43'-17"	67°-48'-37"	67°-48'-37"	65°-58'-27"	62°-57'-21"	62°-57'-21"	62°-57'-21"	62°-57'-21"	78°-11°-76"	78°-9°-16"	83°-6°-16"	49°-10°-16"		
J	71°-41'-32"	67°-50'-06"	67°-50'-06"	65°-59'-56"	63°-16'-20"	63°-16'-20"	63°-16'-20"	63°-16'-20"	78°-11°-76"	78°-5°-16"	83°-4°-16"	49°-8°-16"		
K	71°-39'-47"	67°-51'-35"	67°-51'-35"	66°-01'-25"	63°-35'-25"	63°-35'-25"	63°-35'-25"	63°-35'-25"	78°-11°-76"	78°-2°-16"	83°-1°-16"	49°-7°-16"		
L	71°-38'-02"	67°-53'-04"	67°-53'-04"	66°-02'-54"	63°-54'-36"	63°-54'-36"	63°-54'-36"	63°-54'-36"	78°-10°-16"	77°-10°-16"	82°-10°-16"	49°-5°-16"		
M	71°-36'-17"	67°-54'-34"	67°-54'-34"	66°-04'-24"	64°-13'-54"	64°-13'-54"	64°-13'-54"	64°-13'-54"	78°-10°-16"	77°-6°-16"	82°-7°-16"	49°-3°-16"		
N	71°-34'-32"	67°-56'-04"	67°-56'-04"	66°-05'-54"	64°-33'-18"	64°-33'-18"	64°-33'-18"	64°-33'-18"	78°-10°-16"	77°-2°-16"	82°-5°-16"	49°-2°-16"		
P	71°-33'-42"	67°-57'-03"	67°-57'-03"	66°-07'-53"	64°-52'-48"	64°-52'-48"	64°-52'-48"	64°-52'-48"	78°-10°-16"	76°-1°-16"	82°-2°-16"	49°-0°-16"		
R				66°-20'-50"	66°-59'-23"	66°-59'-23"	66°-59'-23"	66°-59'-23"		See Sh.	80°-10°-16"	48°-3°-16"		
S	71°-32'-47"	71°-00'-14"	71°-00'-14"	69°-10'-04"	69°-10'-04"	69°-10'-04"	69°-10'-04"	69°-10'-04"	77°-3°-16"	75°-0°-16"	79°-7°-16"	47°-6°-16"		

U. S. ROUTE 42 RELOCATION
 INNER BELT FREEWAY
 EAST APPROACH VIADUCT
 BR. NO. CUY-42-1750

FRAMING PLAN-PIER 6B TO ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

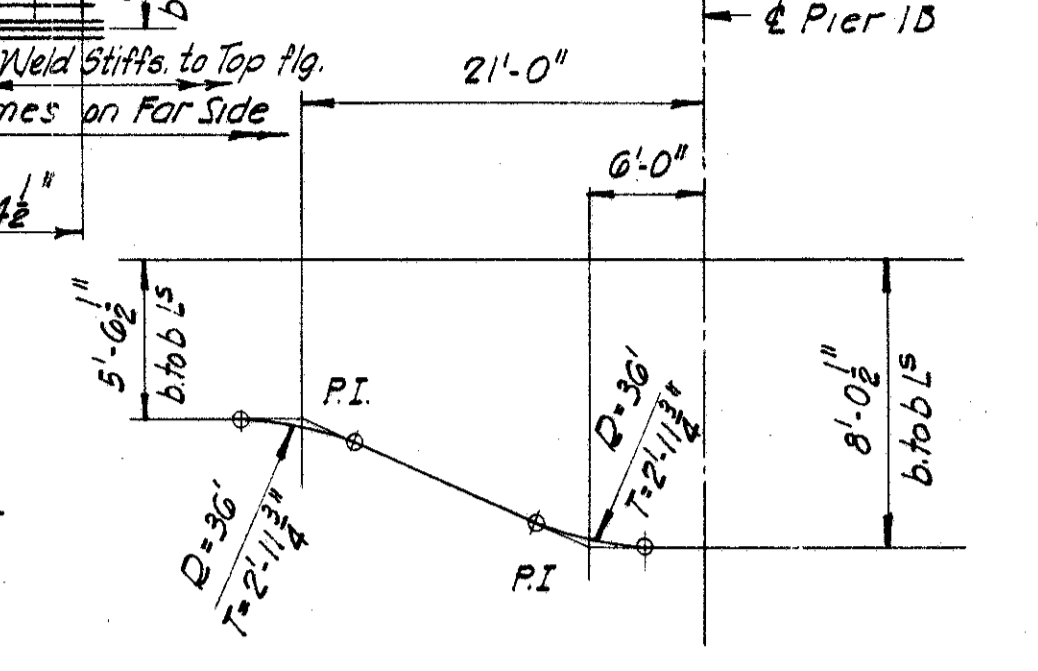
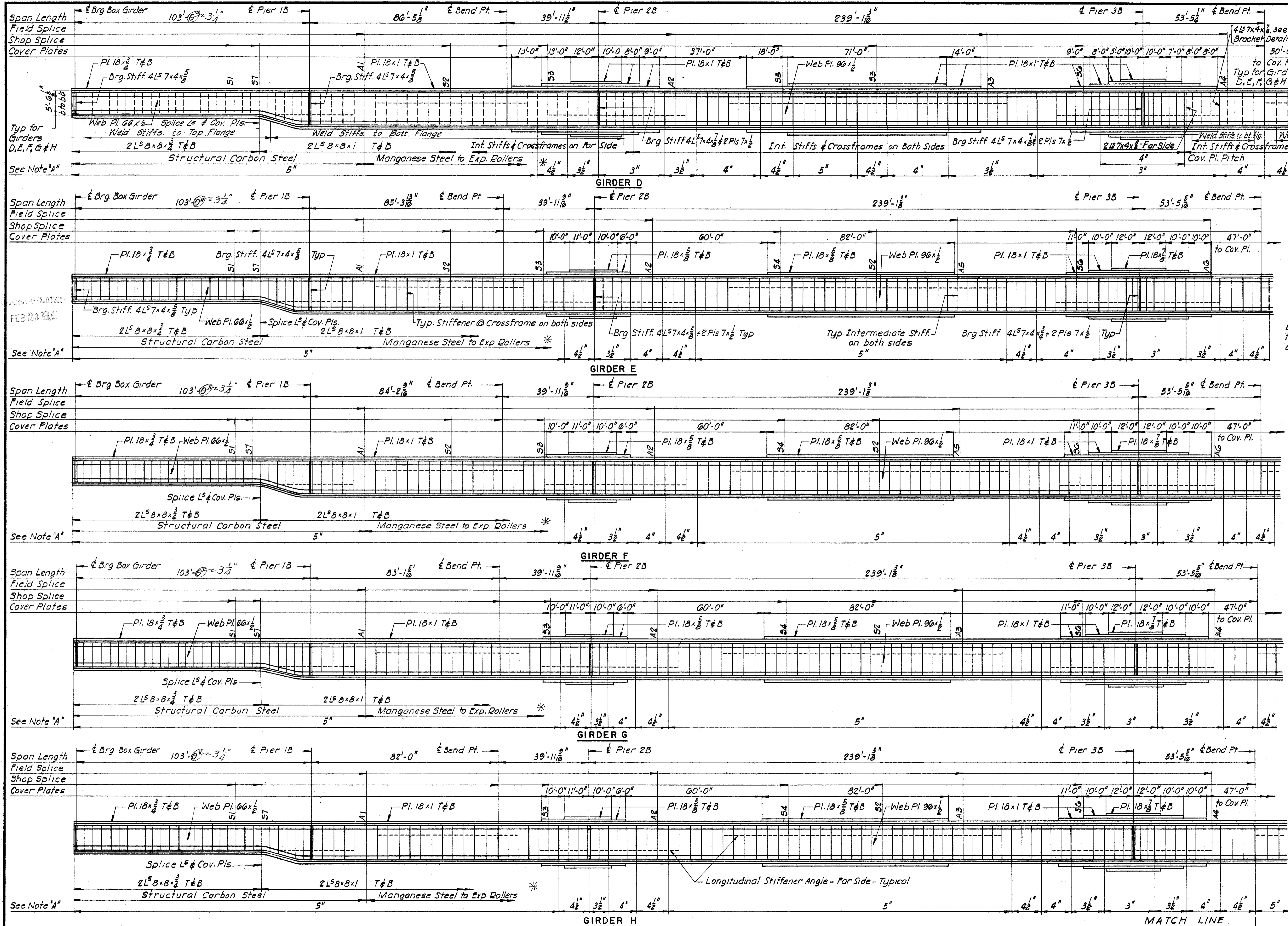
SCALE 1/4" = 1'-0"
 MADE J.A.E. DATE 12-21-56
 TRCD H.R.S. DATE 3-1-57
 CKD B.V. DATE 2-13-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET-72

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

74
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



Locations of P.I.'s are measured horizontally from ϵ of Pier. All other dimensions are parallel or normal to top flange of girders.

- NOTES:**
- Stiffeners, Crossframes and Lateral Bracing Material to be Structural Carbon Steel.
 - All rivets $\frac{3}{8}$ "
 - Intermediate Stiffs. between Crossframes for all Girders are $6 \times 3 \frac{1}{2} \times 1 \frac{1}{2}$ L.S. Fills as required. Crimp Intermediate Stiffeners a maximum of $\frac{3}{4}$ ".
 - For Girders E, F, G & H use Intermediate Stiffeners on both sides of web. Girder D as noted.
 - Intermediate Stiffs. at Crossframes are $7 \times 4 \frac{1}{2} \times 1 \frac{1}{2}$ on 1" fills except as shown at Crossframe Details sh. 85 & for Gdr. K & L. No crimping permitted.
 - Bearing Stiffeners to be milled to bear on flange angles, top & bottom. Bearing Stiffs shown on Girder E are typical for Girders F, G & H.
 - All girders drawn looking North.
 - Longitudinal dimensions of Girders are measured horizontally along ϵ of Web Plate.
 - Note "A" - Staggered rivet pitch, Flange Angle to Web. Stagg. pitch, Flange to Cov. Pls. 5" unless noted. For details at Bend Points of Girders see Sh. 83.
 - Longitudinal Stiffener Angles for all Girders are $1L \ 4 \times 3 \frac{1}{2} \times \frac{1}{2}$.
 - Cover Pl. lengths are to be modified as required at splices shown in Girder Splice Details.
 - The notations "S1", "S2", "A1", "A2", etc. designate a shop or field splice at the particular location. For splice details see Shs. 81 & 82.
 - For weld detail of intermediate stiffeners see Sh. 85.

* See General Note 11A and Sheet 83

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

GIRDER ELEVATIONS

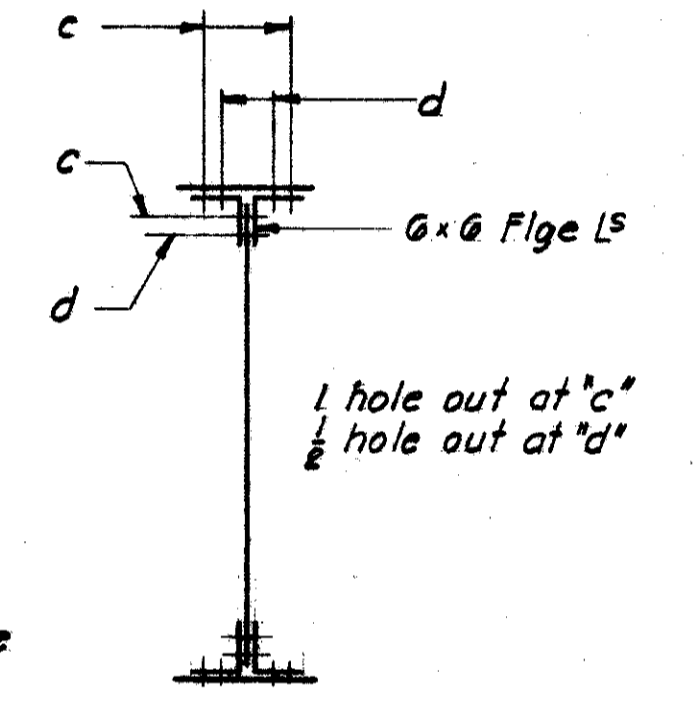
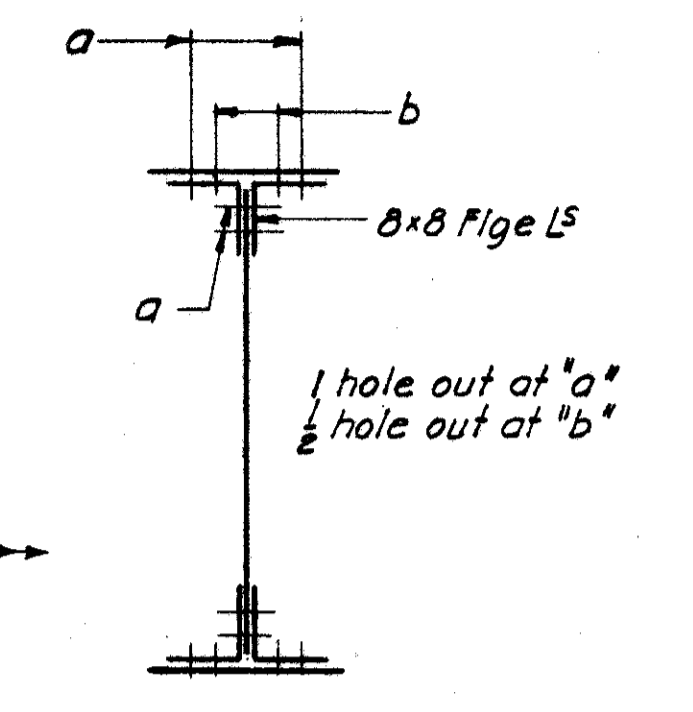
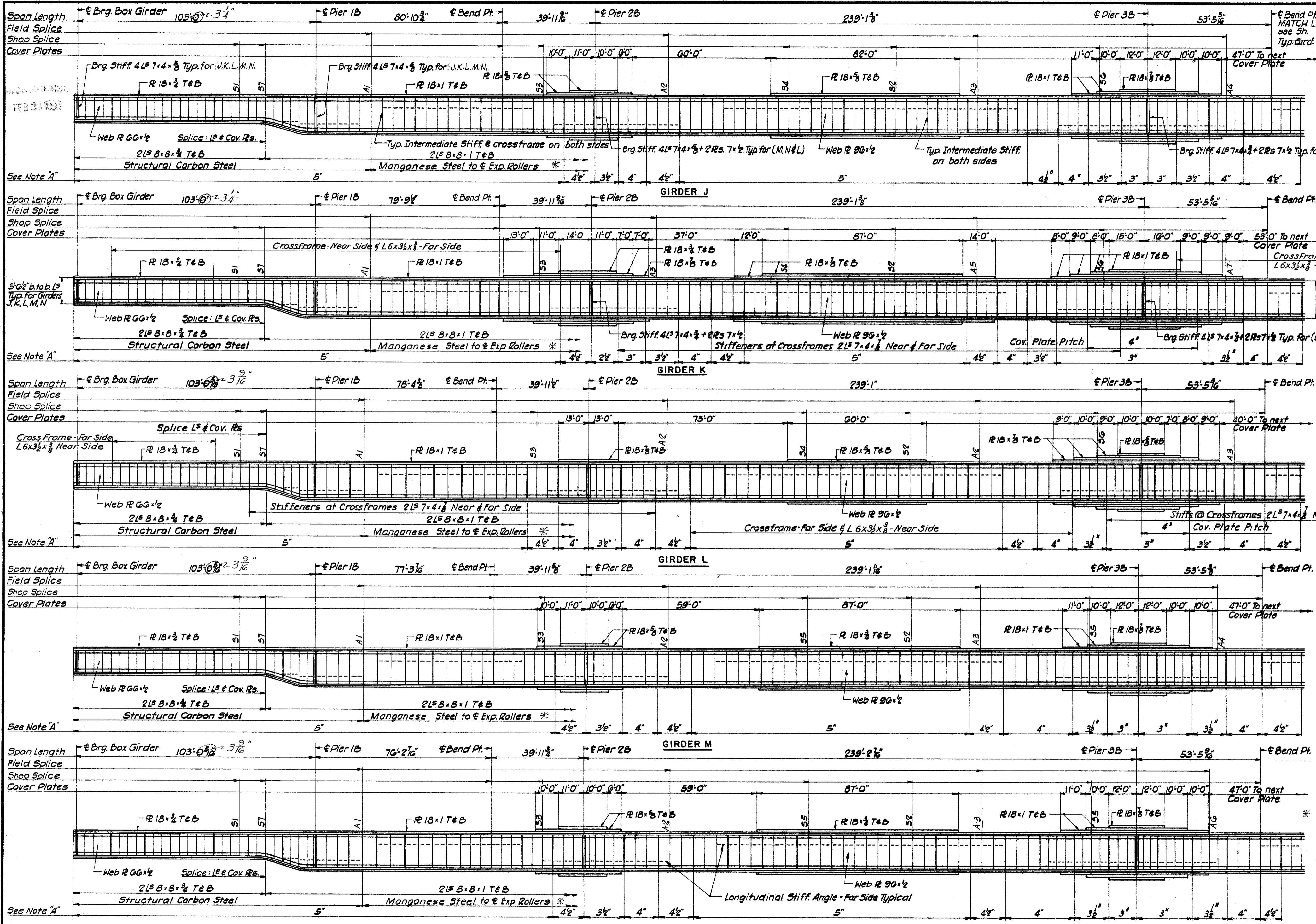
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1"=20' Horiz., 1"=10' Vert.
MADE H.F.S. DATE 12-28-56
TRND H.F.S. DATE 3-7-57
CHD. H.G. DATE 2-7-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-74

MATCH LINE
Typ for Girders D thru H Inclusive.

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:
All intermediate stiffener L^s 6x3 1/2x 3/8 including those on side of girder opposite cross frame connections for Girders K & L shall be crimped a maximum of 3/4".
For Notes with reference to Girders J, K, L, M, N, see Sh. 14.
All girders drawn looking North.
Note A - Staggered rivet pitch, Flange Angle to Web, Staggered rivet pitch, Flange Angle to Cover Pl. 5° unless noted.
Intermediate Stiffeners & Crossframes on both sides of web for Girders J, M & N.
Intermediate Stiffeners on both sides of Web for Girders K & L.
Cover plate lengths shown are to be modified as required at splices shown in Girder Splice Details.
* See Gen. Note 11A and Sh. 83

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-17.50
GIRDER ELEVATIONS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 20' Hor. 1/4" = 10' Vert.
MADE: 1/10/57 DATE: 1-3-57
TRCD: N.R.K. DATE: 3-8-57
CKD: H.E. DATE: 2-7-57

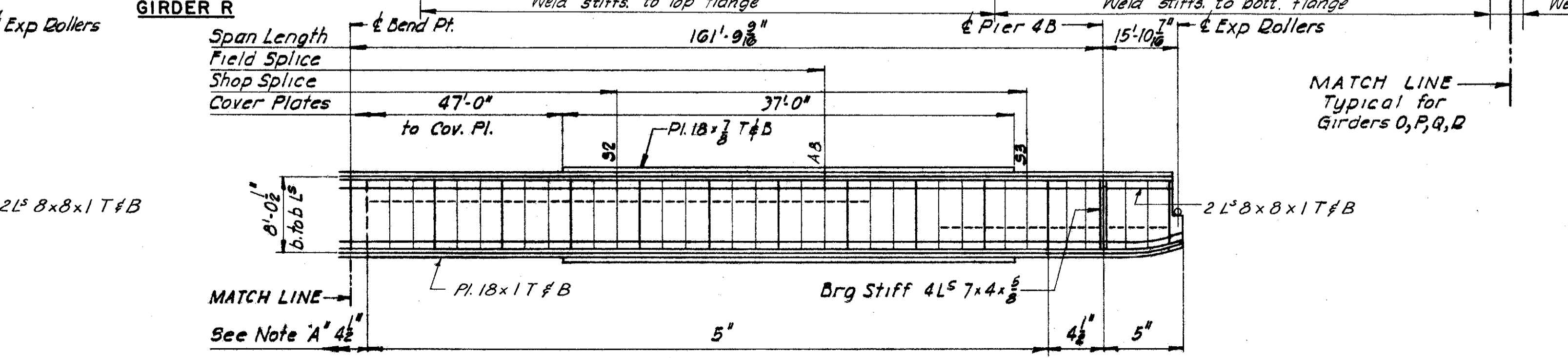
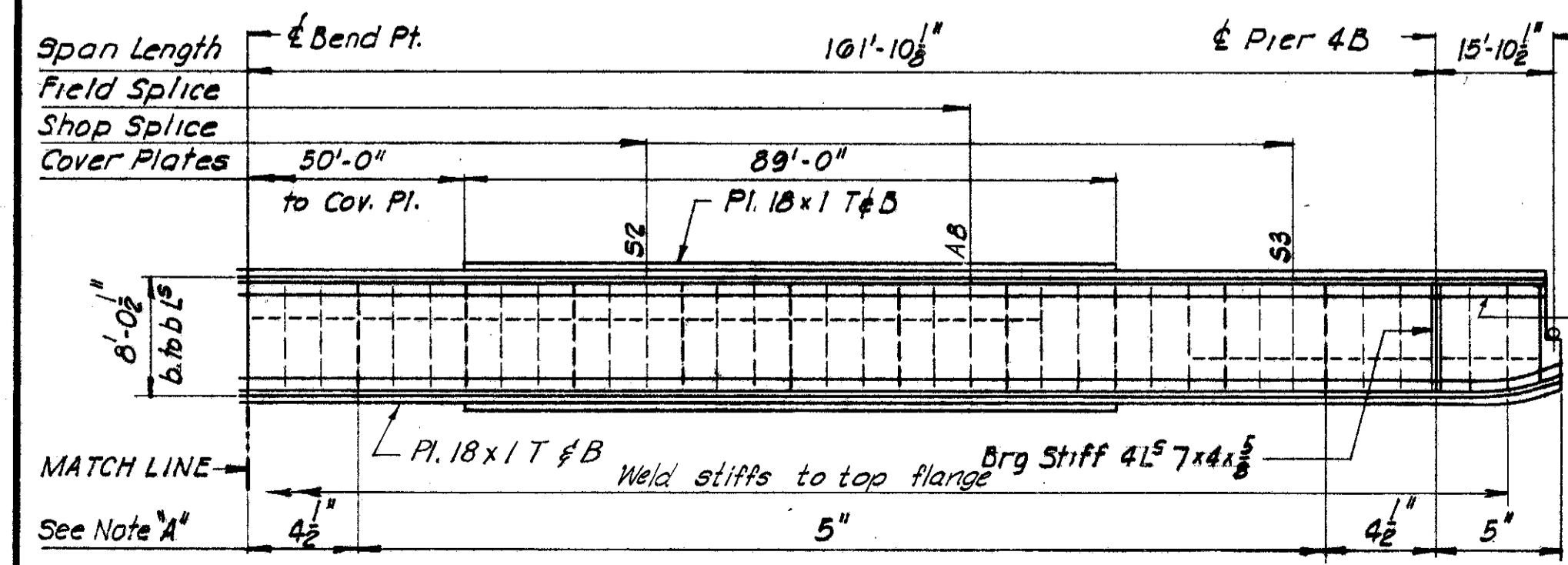
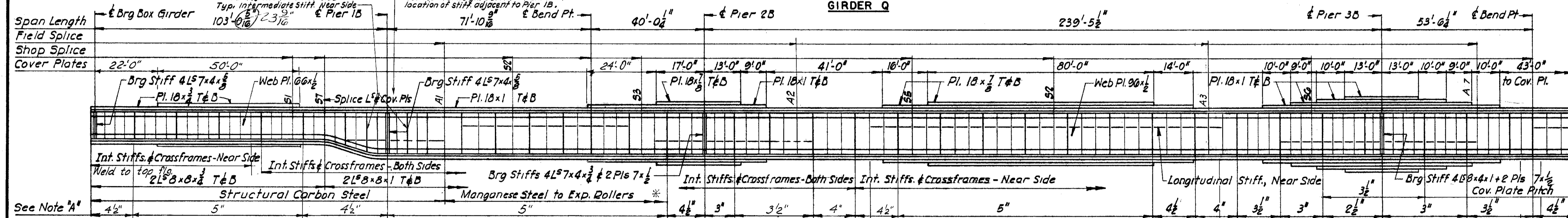
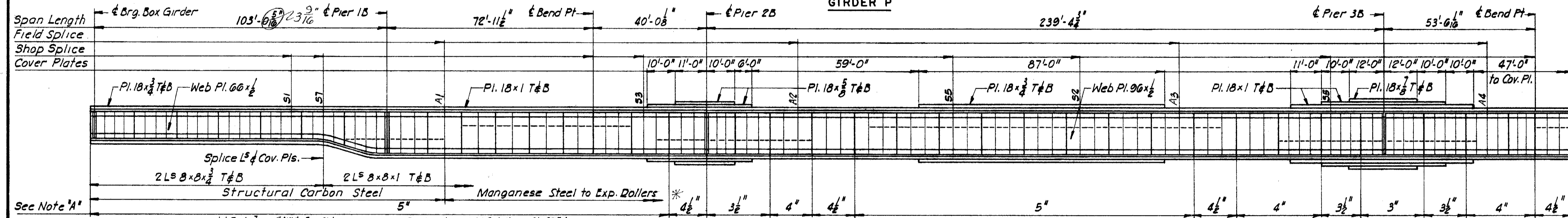
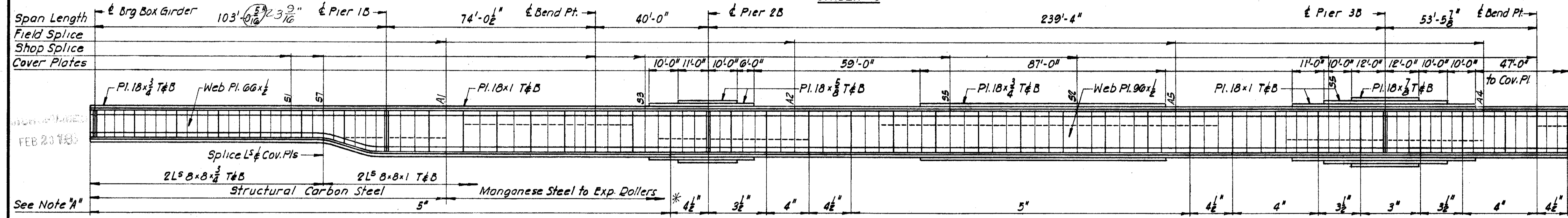
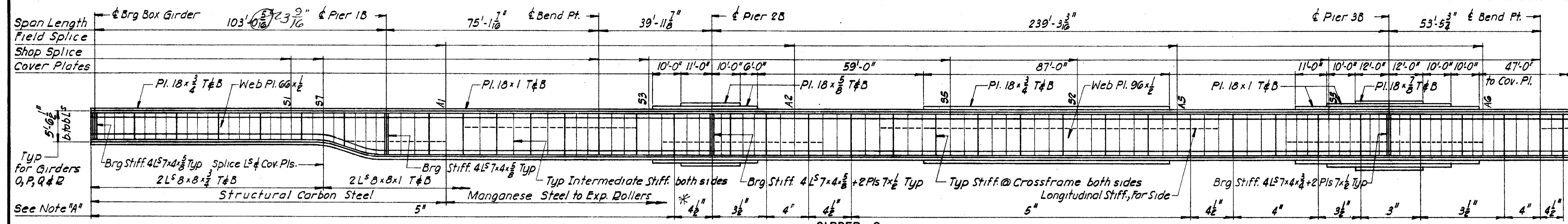
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-75

Revised 2-13-58

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

76
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:

Stiffeners, Crossframes and Lateral Bracing material to be Structural Carbon Steel.

All rivets 7/8".

Intermediate Stiffeners between Crossframes for Girders O, P, Q & R are 6 x 3/2 x 1/2 L5. Fill as required. Crimp Intermediate Stiffeners a maximum of 3/4".

For Girders O, P & Q use Intermediate Stiffeners on both sides of Web.

Intermediate Stiffeners at Crossframes are 7 x 4 x 1/2 L5 on 1" fill plates. No crimping permitted.

Bearing Stiffeners to be milled to bear on flange angles, top and bottom. Bearing Stiffeners shown on Girder O are typical for Girders P & Q.

Longitudinal Stiffener Angles for all girders are 1 L 4 x 3 1/2 x 1/2.

All girders drawn looking North.

Longitudinal dimensions of Girders are measured horizontally along E of Web Plate.

Note A: Staggered rivet pitch, flange angle to web. Stagg. pitch, Plge L5 to Cov. Pl. 5" unless noted.

For Notes pertaining to Girders D & E see Sh. 74.

For details of Bend Points of Girders see Sh. 83.

For splice details see Sh. 81 & 82.

For Geometry of Girders see Sh. 74.

Cover Pl. lengths shown are to be modified at splices as shown in Girder Splice Details.

For weld detail of intermediate stiffeners see Sh. 85.

* See General Note 11A sheet 83

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
GIRDER ELEVATIONS

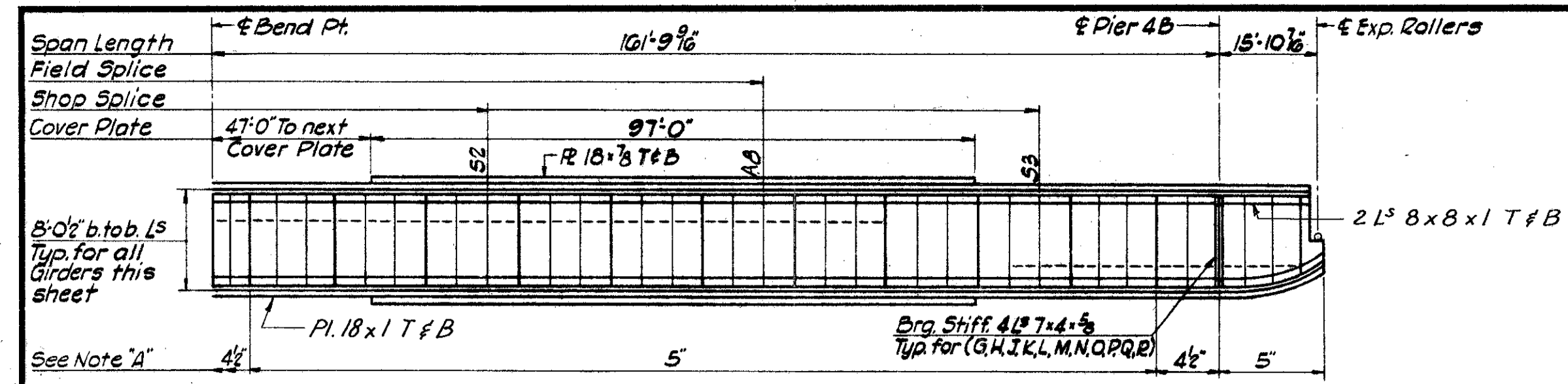
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 10' Vert., 1" = 20' Horiz.
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TRCD H.R.-K. DATE 3-11-57
CHD Z.L.B. DATE 8-20-57

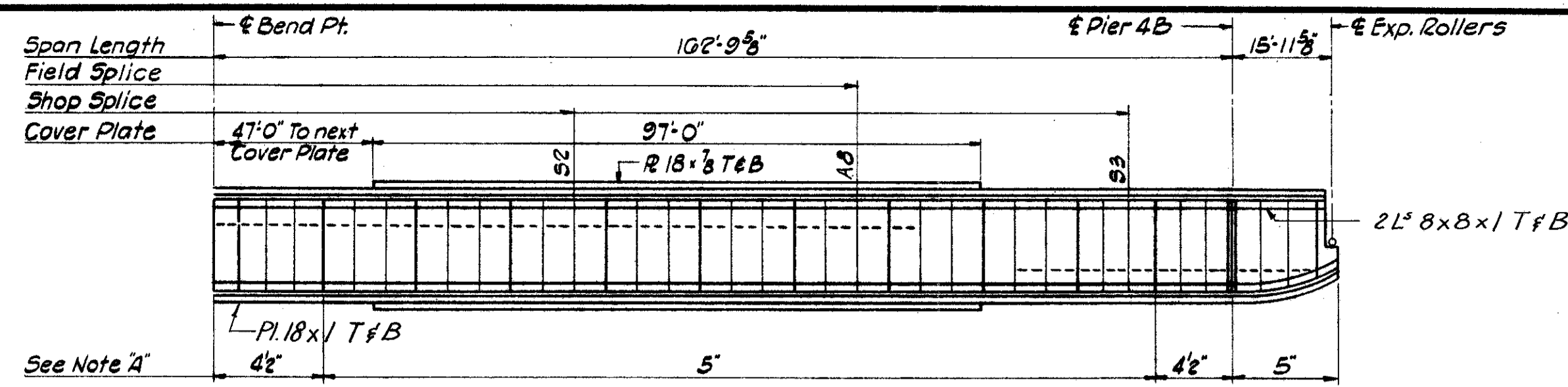
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-76

Revised 2-13-58

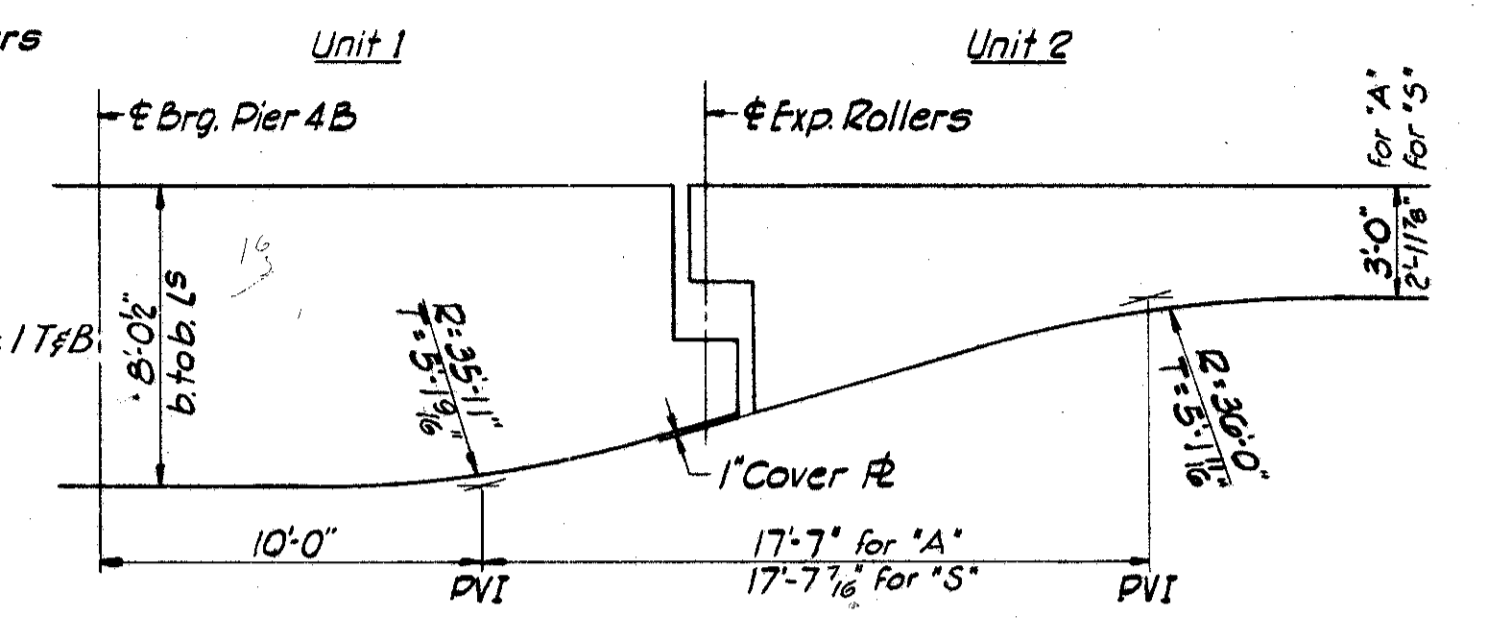
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)



EAST END GIRDER F

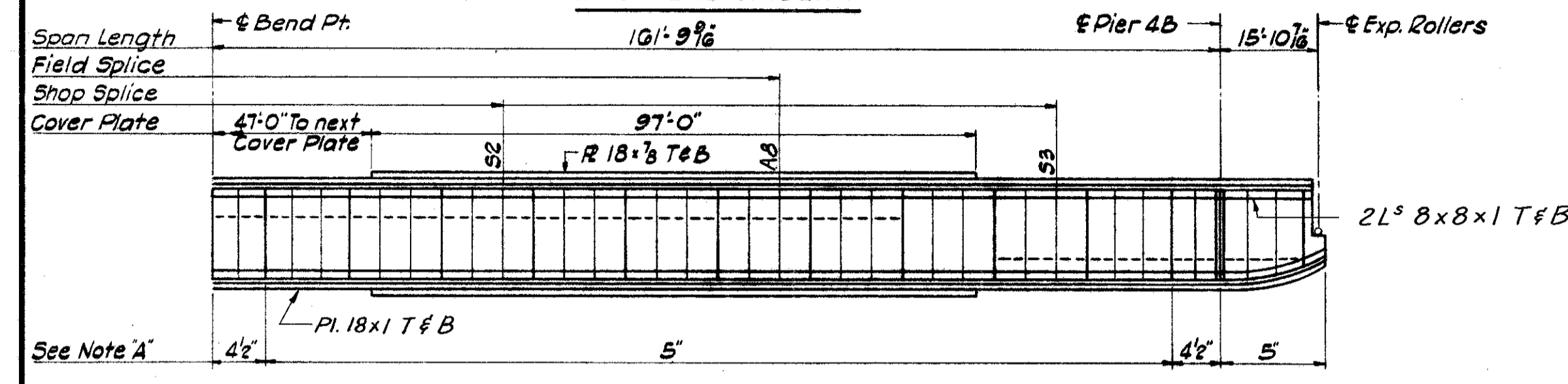


EAST END GIRDER M

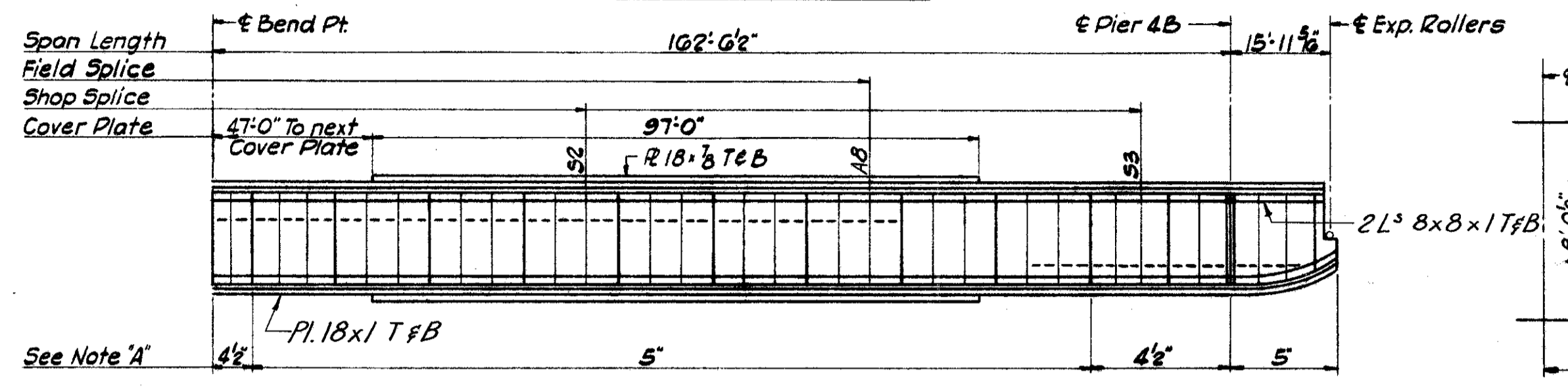


GEOMETRY-GIRDERS D & R AND BEAMS A & S AT EXP. ROLLERS

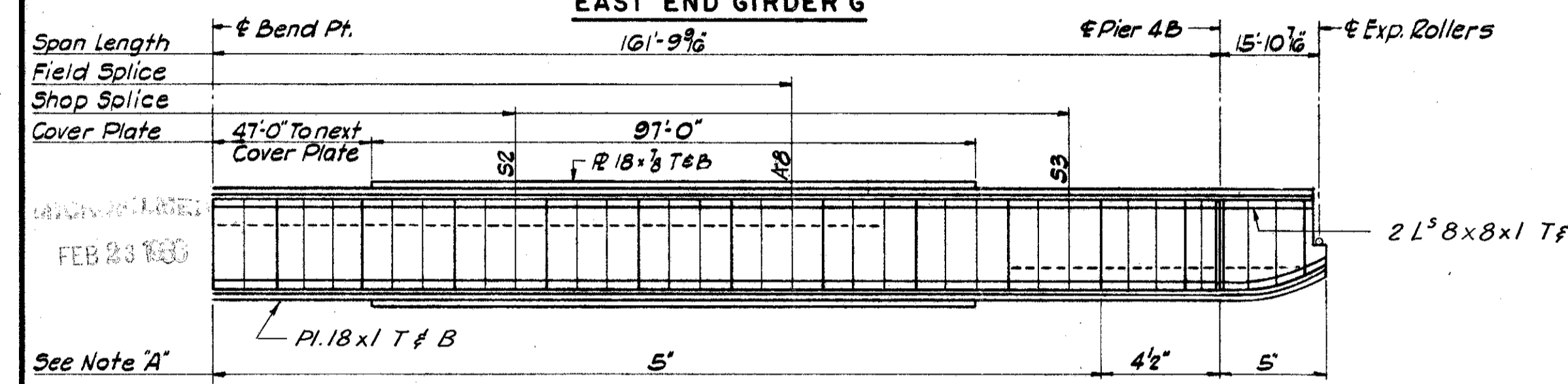
No Scale
Geometry for Girders E thru Q same as above
Locations of P.V.I.'s are measured horizontally from $\frac{1}{2}$ of Pier
All other dimensions are parallel or normal to top flange of girders.



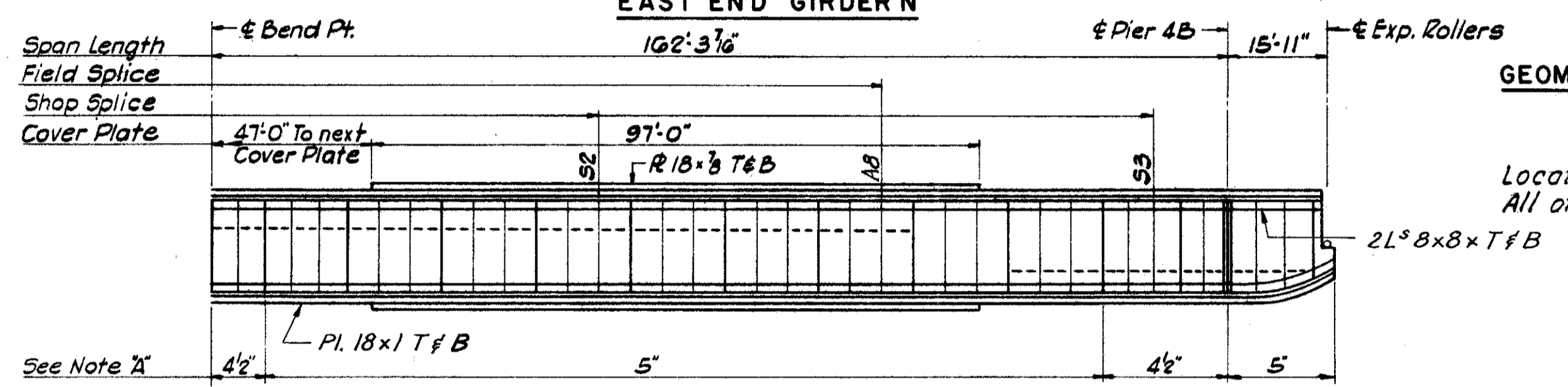
EAST END GIRDER G



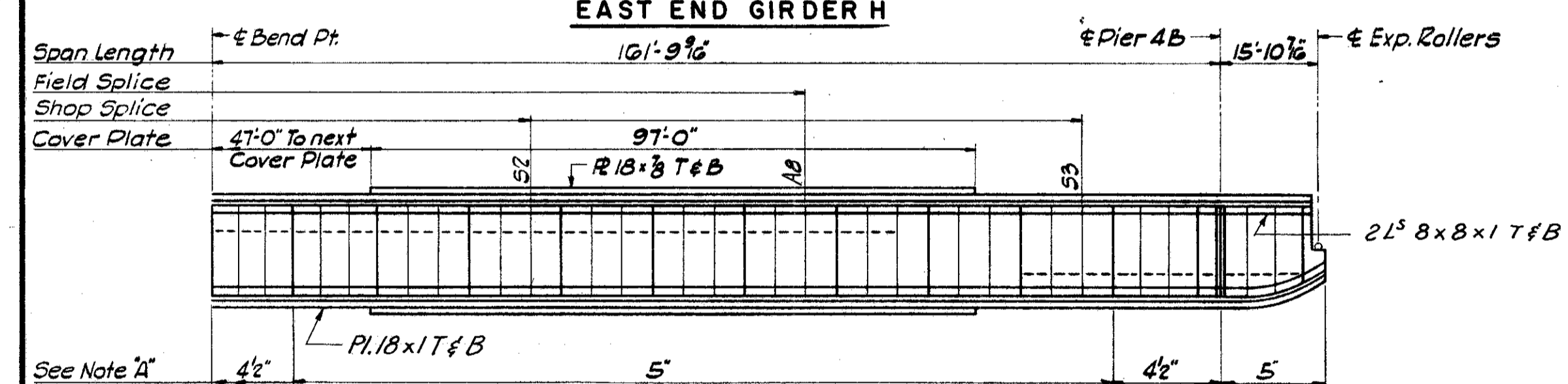
EAST END GIRDER N



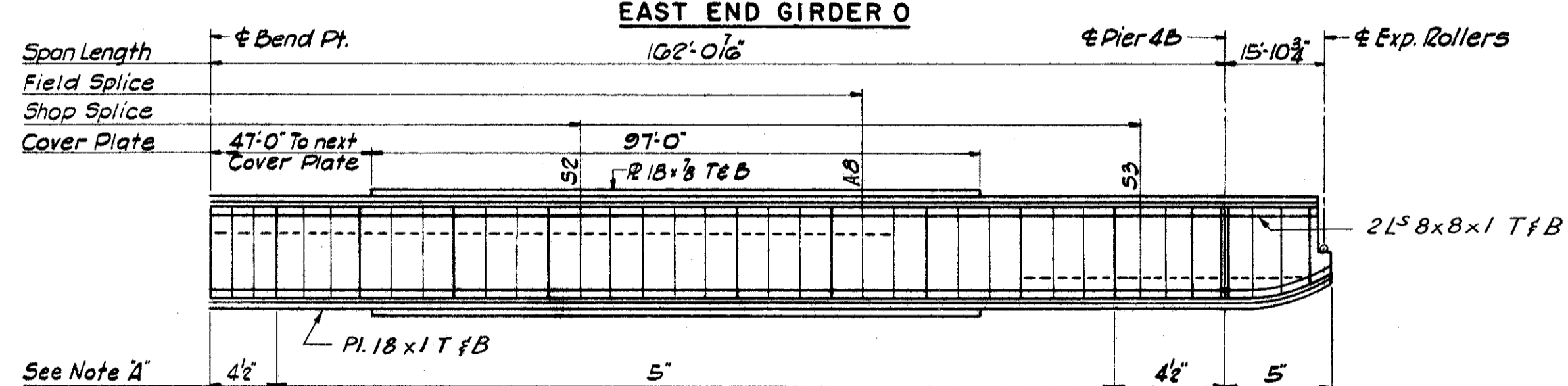
EAST END GIRDER H



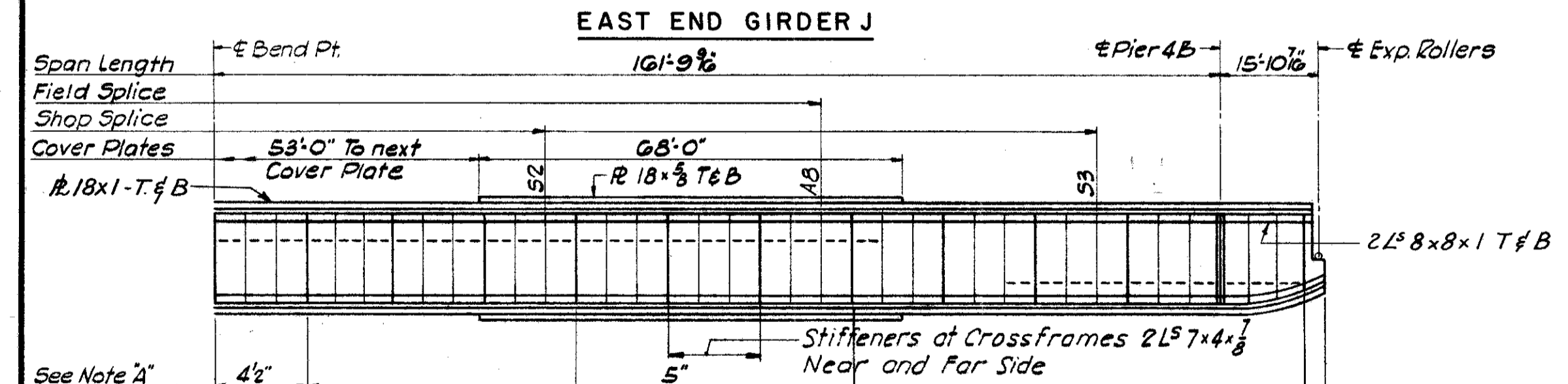
EAST END GIRDER O



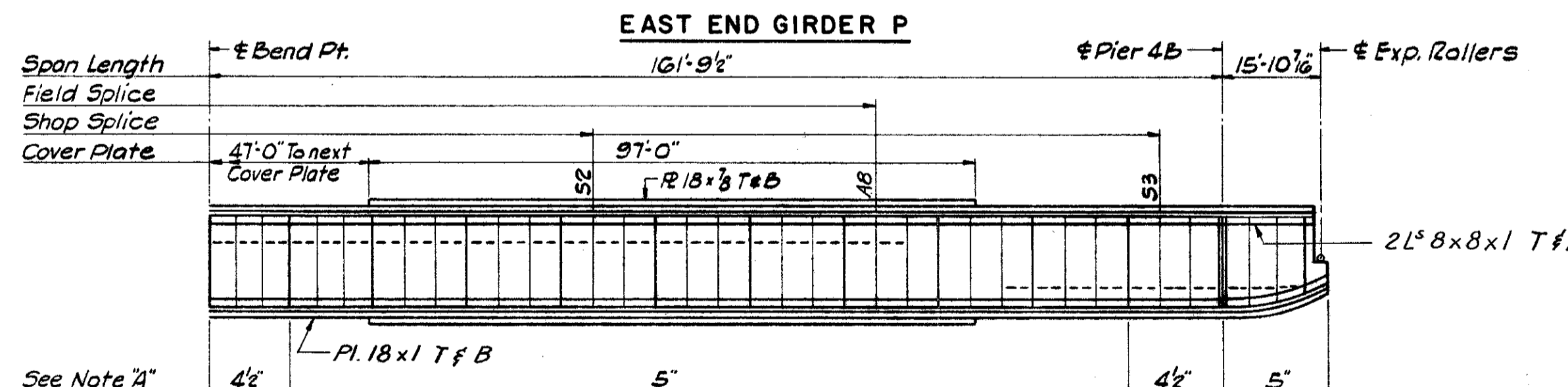
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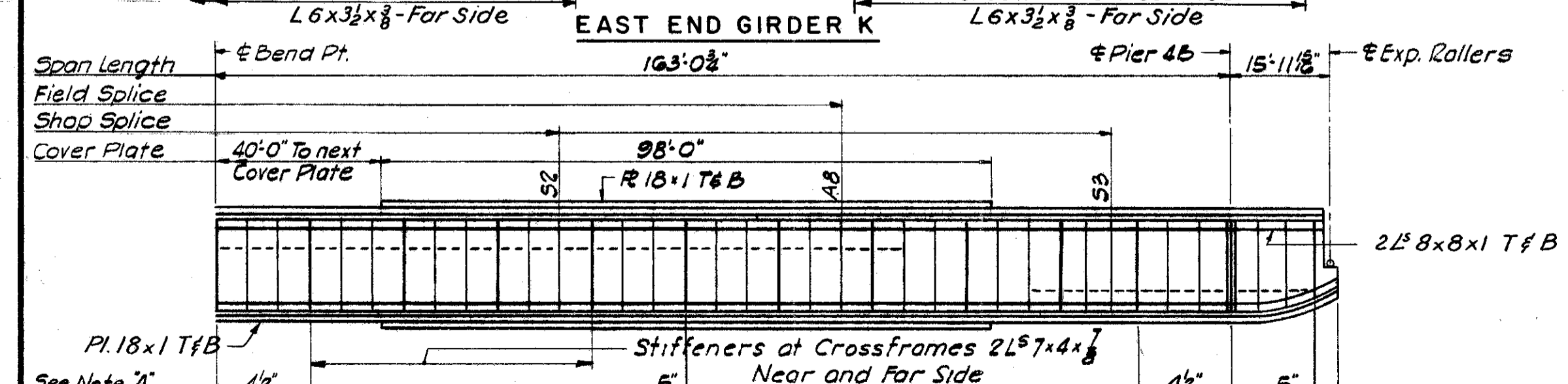
EAST END GIRDER P



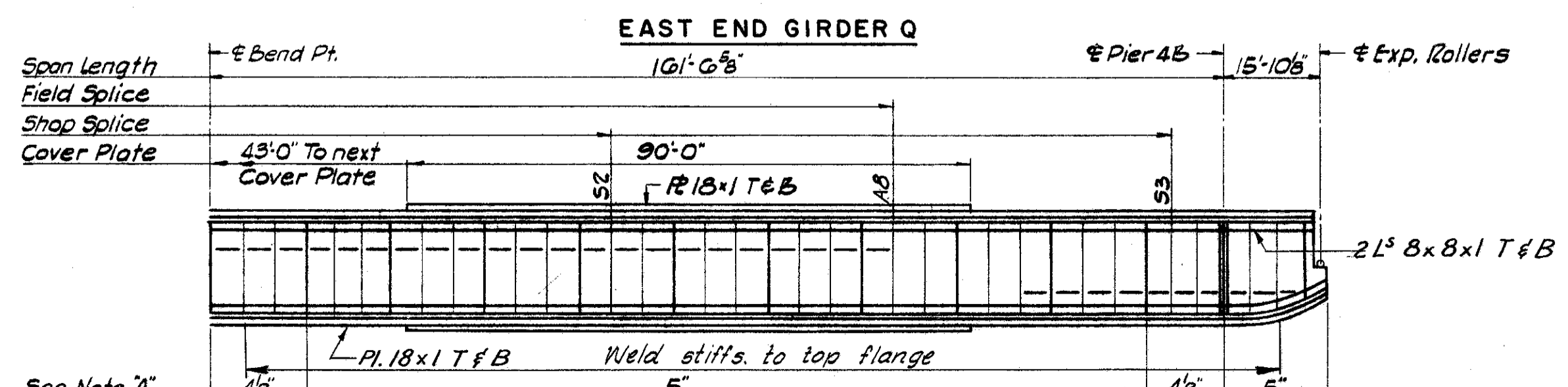
EAST END GIRDER K



EAST END GIRDER Q



EAST END GIRDER L



EAST END GIRDER R

NOTES:
For Notes with reference to Girders F, G, H, J, K, L, M, N, O, P, Q, R, see Sh. 14.
All girders drawn looking North.
Note 'A' - Staggered rivet pitch, Flange Angle to Web, Staggered rivet pitch, Flange Angles to Cover Plate 5".
For weld detail of intermediate stiffeners see Sh. 85.
All intermediate stiffener L₆ 3x2 1/2 including those on side of girder opposite cross frame connections for Girders K & L shall be crimped a maximum of 3/4".
See General Notes 11A & 577. 85

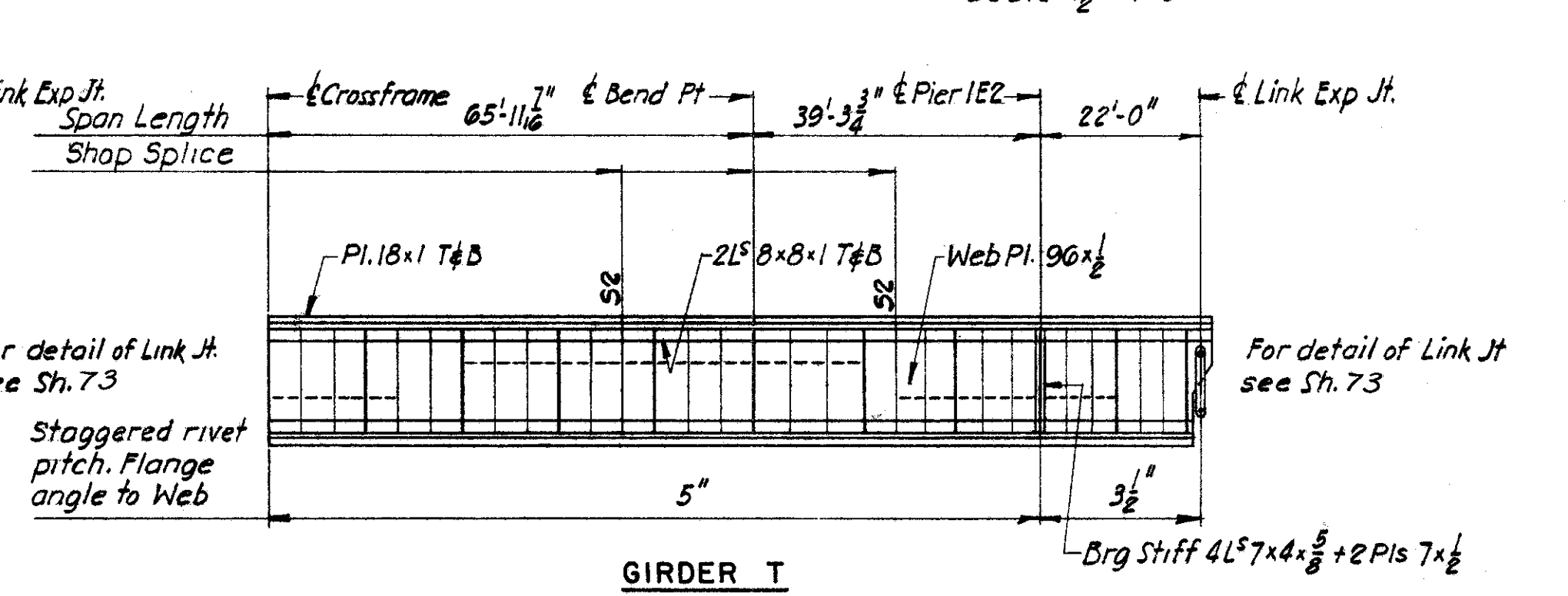
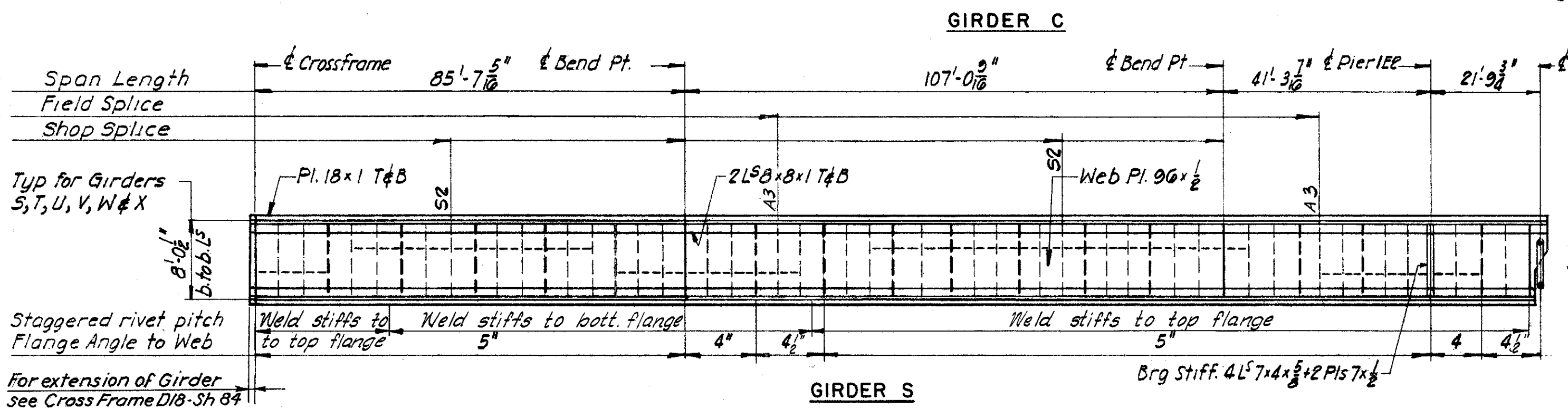
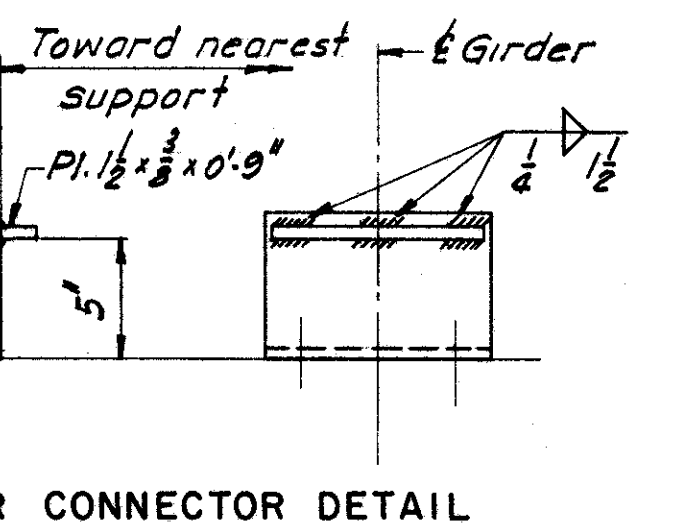
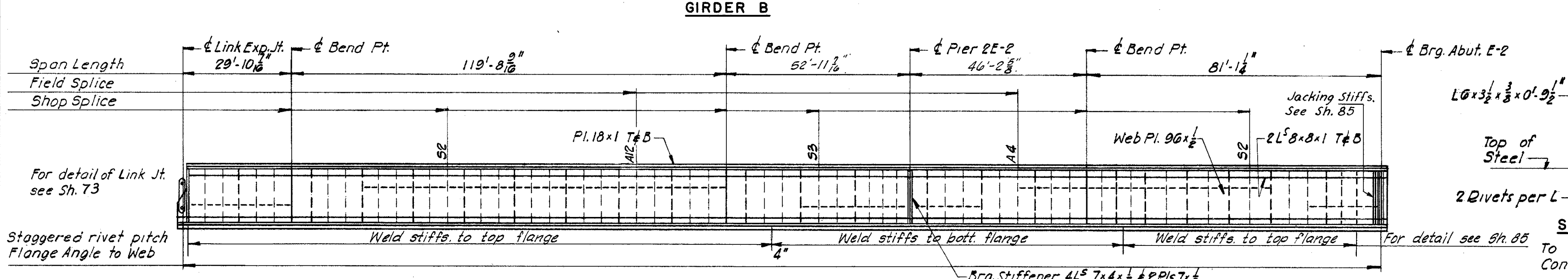
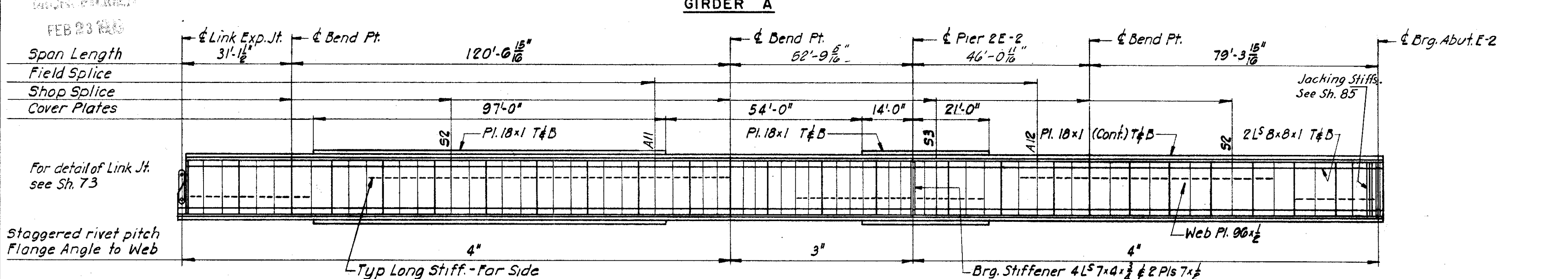
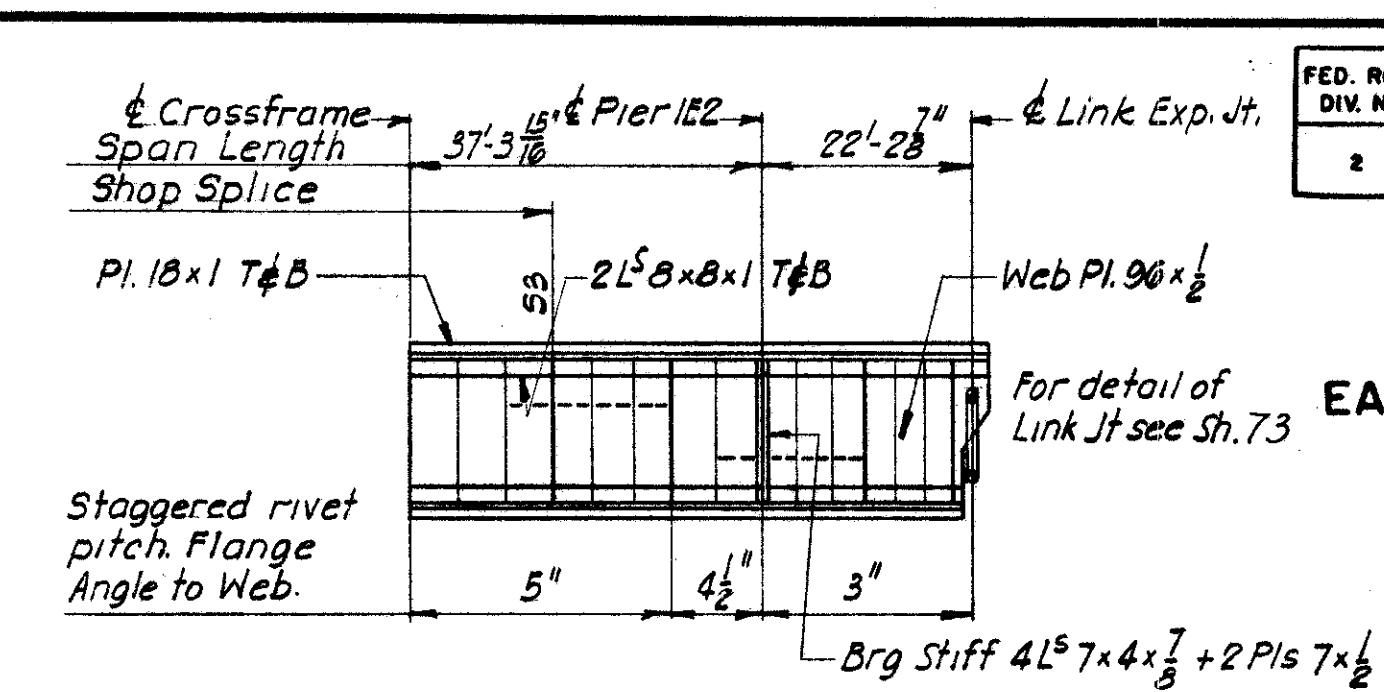
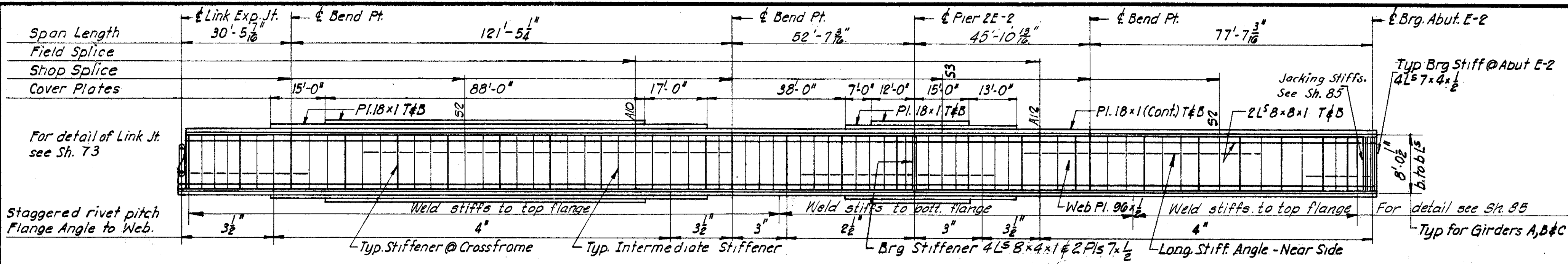
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
GIRDER ELEVATIONS
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: 1"=20' Hor. 1"=10' Vert.
MADE I.C. DATE 1-2-57
TRCD N.R. DATE 3-12-57
CHD H.B. DATE 2-7-57
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-77

MATCH LINE at $\frac{1}{2}$ Bend Pt. see Sh. 74, 75 & 76

MATCH LINE at $\frac{1}{2}$ Bend Pt. see Sh. 74, 75 & 76

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	78
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



NOTES:

Cover Plate lengths shown are to be modified at splices as shown in Girder Splice Details.

Flange angles, web plates and cover plates of Girders A, B, C, S, T, U are Manganese Steel.

Longitudinal Stiffeners for all girders are 1-L 4x3 1/2 x 9/8.

Stiffener, Crossframe and Lateral Bracing material for all Girders to be Structural Carbon Steel.

All rivets 3/4" Stagg. Pitch Flg 15 to Cov. Pl. 5"

Intermediate stiffeners between crossframes are 6x3 1/2 x 1 1/2. Use 1/2" fill pls for Girders A, B, C, S, T, U. Crimp Intermediate stiffener angles a maximum of 3/4". At Girders A, C and S use one Intermediate stiffener on inside face of girder. At Girders B, T, U, use Intermediate stiffeners on both sides of web.

Intermediate stiffeners at crossframes are 7x4 1/2 x 1 1/2 on fill pls. For Girders A, B, C, S, T and U use 1" fills. No crimping permitted.

All Girders drawn looking North.

Longitudinal dimensions of Girders shown are measured horizontally along 1/2" of Web Plate. For details of Bend Points of Girders see Sh. 83. For splice details see Shs. 81 & 82.

The location of field splices for Girders A, B and C assumes a temporary support to be located approximately 85' West of Pier 2E-2. This support cannot be omitted. Erection of girders is assumed to proceed Eastward from the 1/2" of Link Joint to Abut. E-2. The support shall remain in place until entire Superstructure Deck concrete has been placed.

Bearing stiffeners to be milled to bear on flange angles, top & bottom.

See General Note 11A and Sheet 83

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

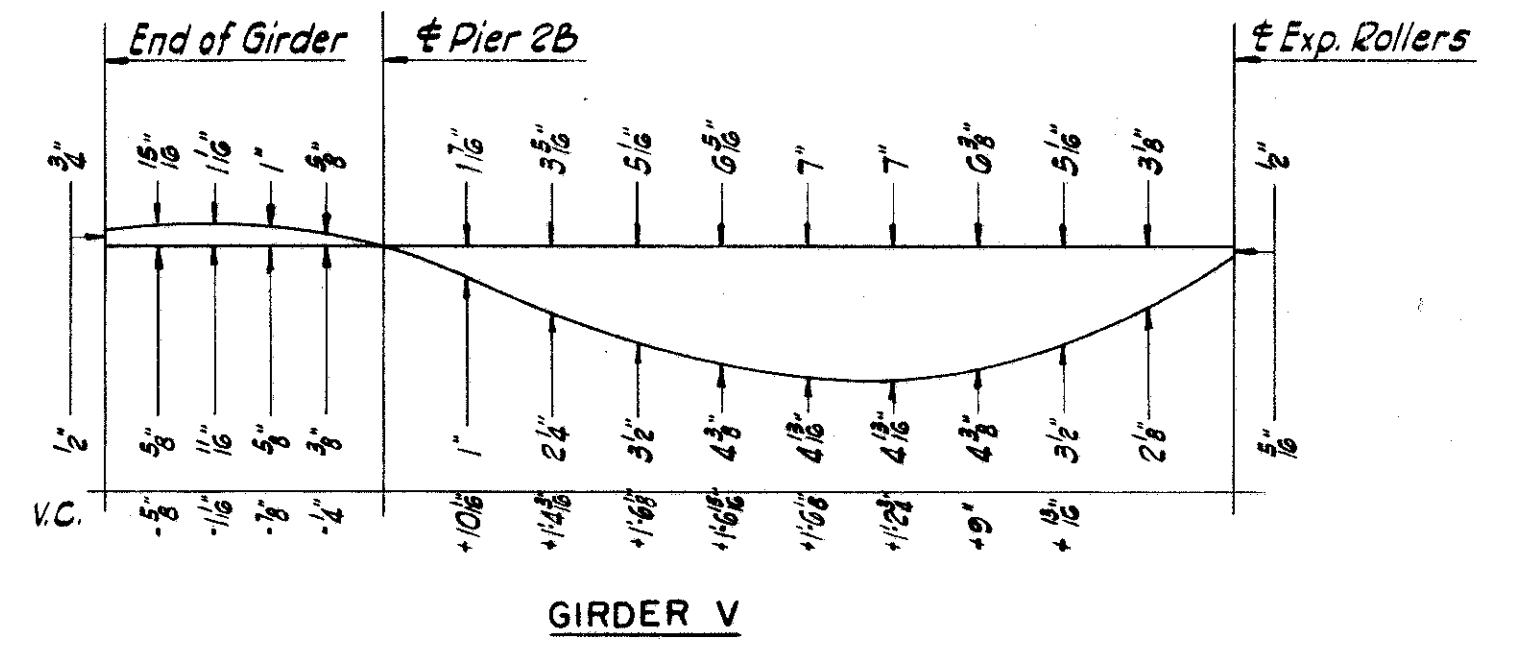
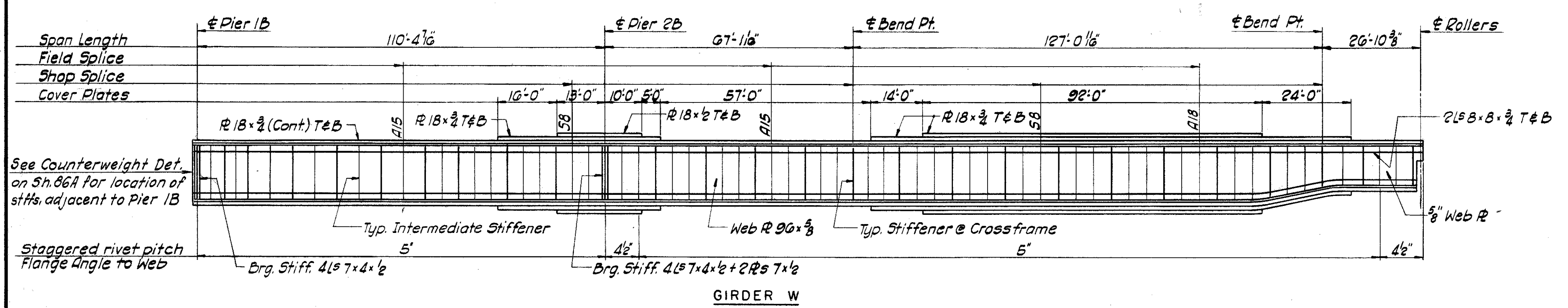
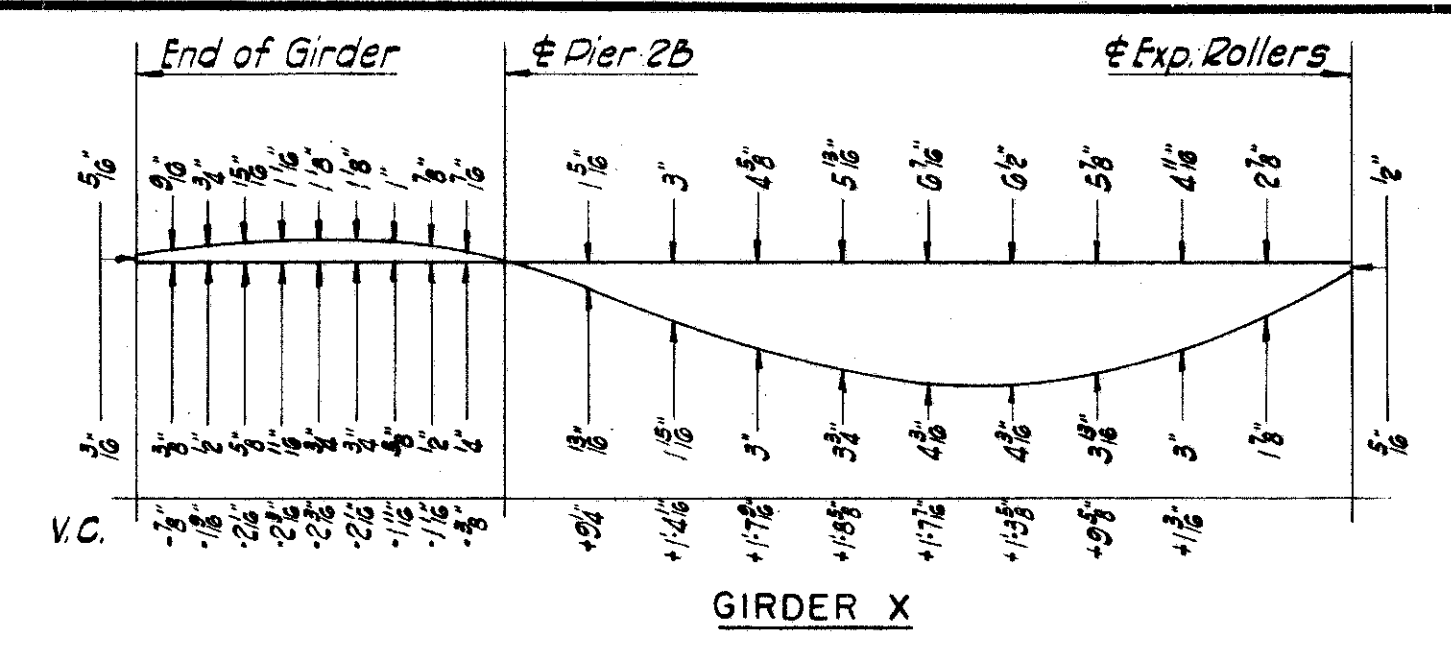
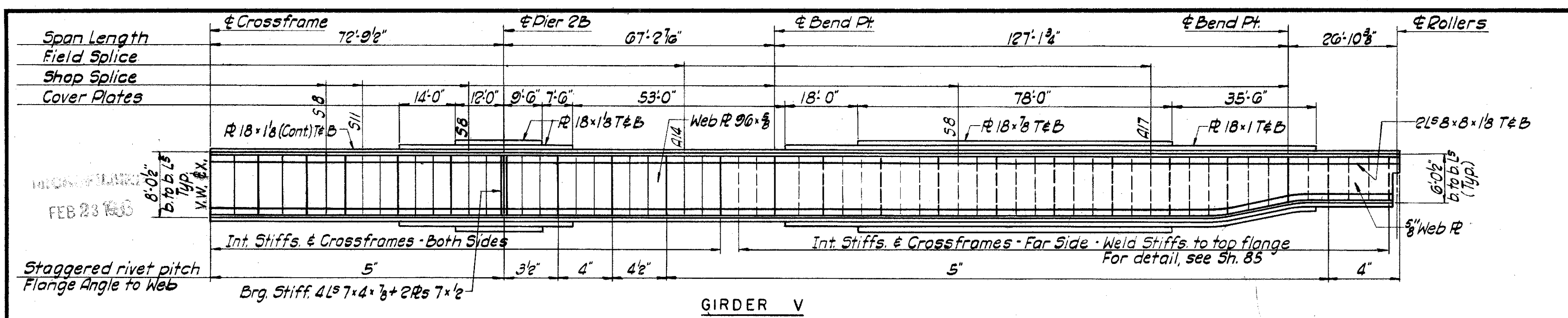
GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

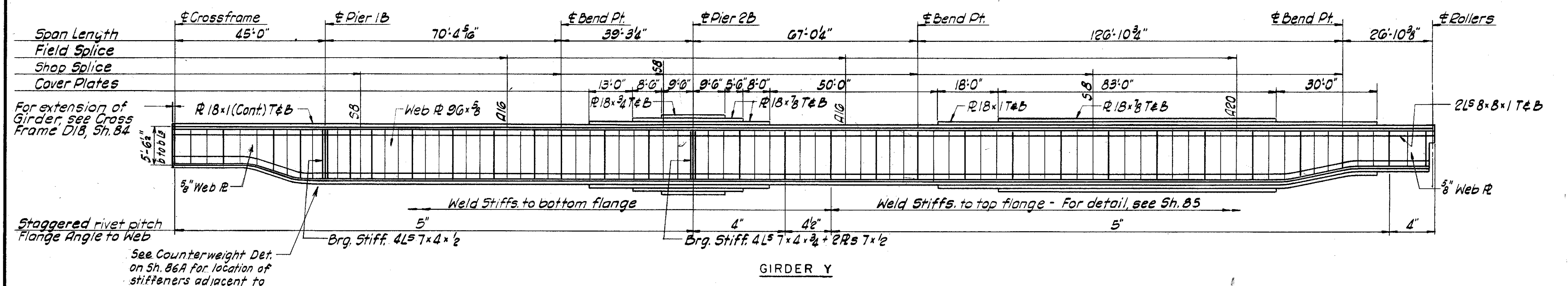
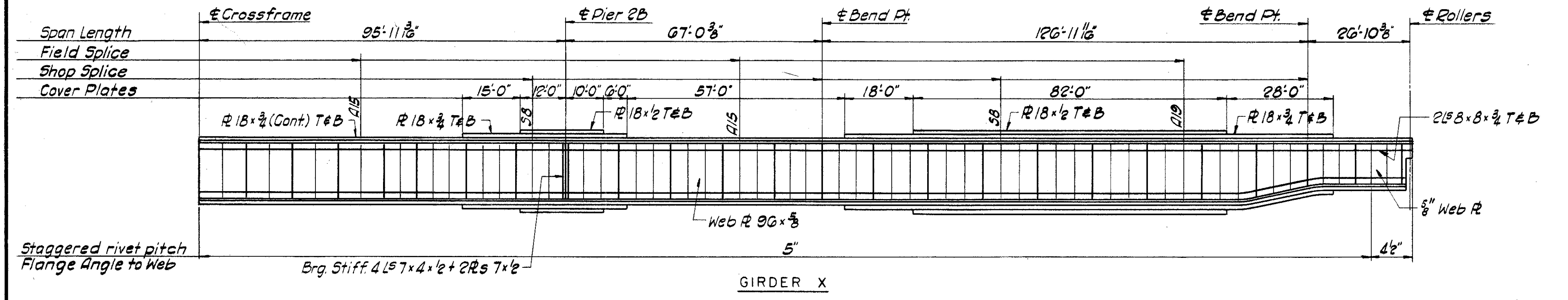
SCALE: 1" = 10' Vert., 1" = 20' Horiz.
MADE H.F.S. DATE 1-4-57
TRCD N.S.-K. DATE 3-13-57
CHK'D G.P.K. DATE 8-20-57

HOWARD, NEEDLES TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-78

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

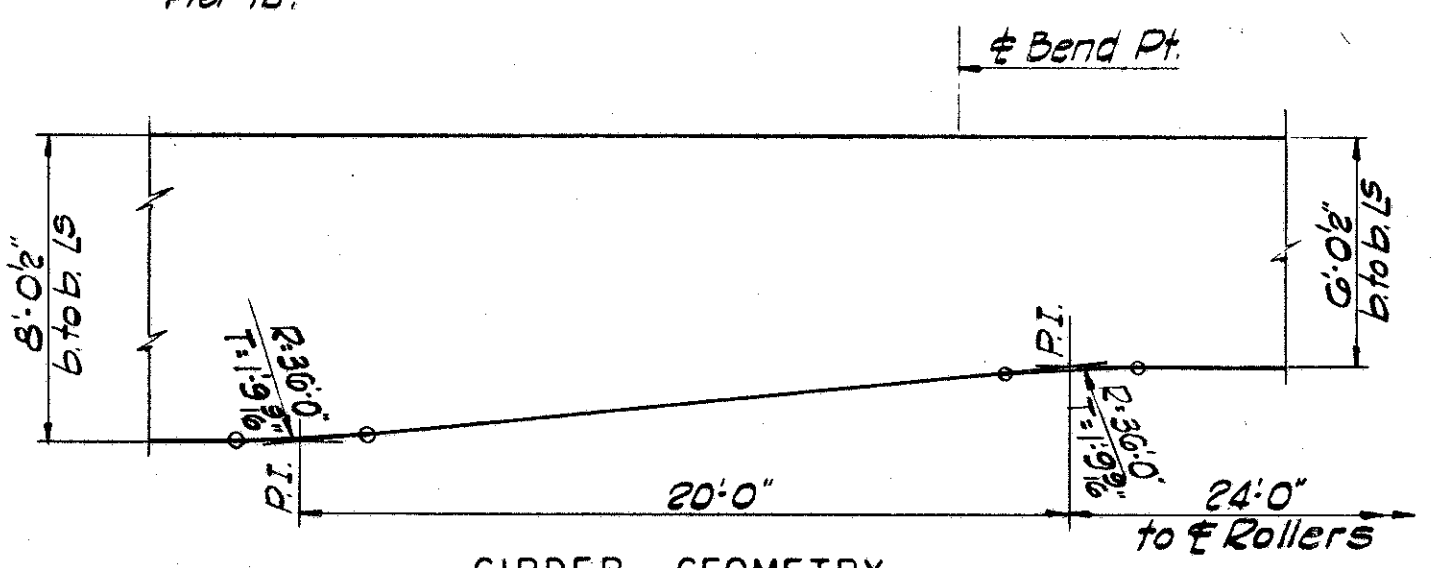


DEFLECTION DIAGRAMS
No Scale
For notes, see Sh. 90.



- NOTES:**
- 1. Cover Plate lengths shown are to be modified at splices as shown in Girder Splice Details.
 - 2. Flange angles, web plates and cover plates to be Manganese Steel.
 - 3. Stiffener, Crossframe and Lateral Bracing material for all Girders to be Structural Carbon Steel.
 - 4. All rivets 3/8" Stagg Pitch Flg. 1/8" to Cov. R. 5".
 - 5. Intermediate Stiffeners betw. crossframes are 6x3 1/2 x 1/2 Use 3/4" fill pls. for Girder V and 4" fill pls. for Girder Y. Crimp Intermediate stiffener angles a max. of 3/4". At Girders W and X use Interm. stiffeners on both sides of web. At Girder Y use one Interm. stiffener on inside face of Girder. Girder V as noted.
 - 6. Intermediate stiffeners at crossframes are 7x4 x 1/2 Use 1/2" fill pls. For Girders W and X use 3/4" fills and for Girder Y use 1" fills. No crimping permitted.
 - 7. Longitudinal dimensions of Girders shown are measured horizontally along & Web Plate.
 - 8. For details of Bend Points of Girders, see Sh. 83.
 - 9. For splice details, see Shs. 81 & 82.
 - 10. Bearing stiffeners to be milled to bear on flange angle, top and bottom.
 - 11. All Girders drawn looking North.
 - 12. For details at rollers, see Shs. 86 & 86A.
 - 13. For geometry of Girder Y West of Pier 1B see Sh. 74.

See General Notes 11A and Sheet 83



Location of P.I.'s are measured horizontally from & Rollers.
All other dimensions are parallel or normal to top flange of girders.
1" = 5'

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: UNLESS NOTED
MADE: 11-2-57 DATE: 1-22-57
TRCD: 11-2-57 DATE: 2-21-57
CKD: 11-2-57 DATE: 2-19-57

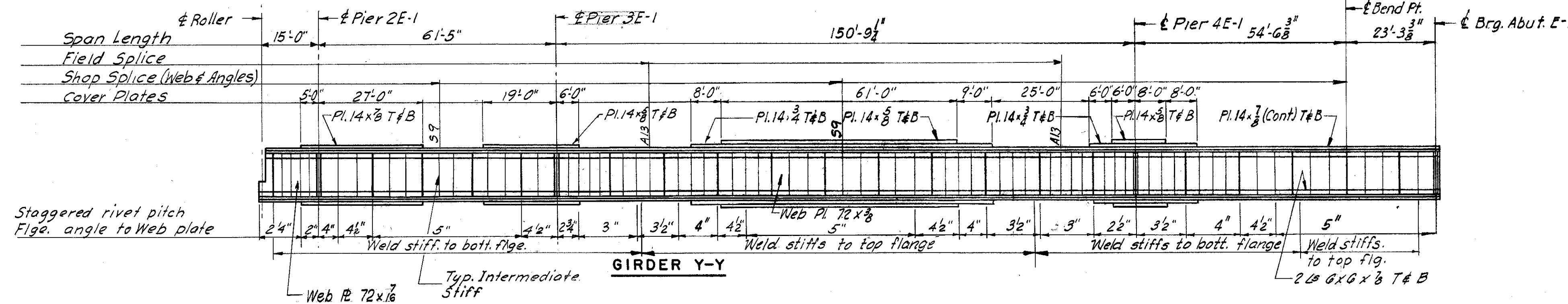
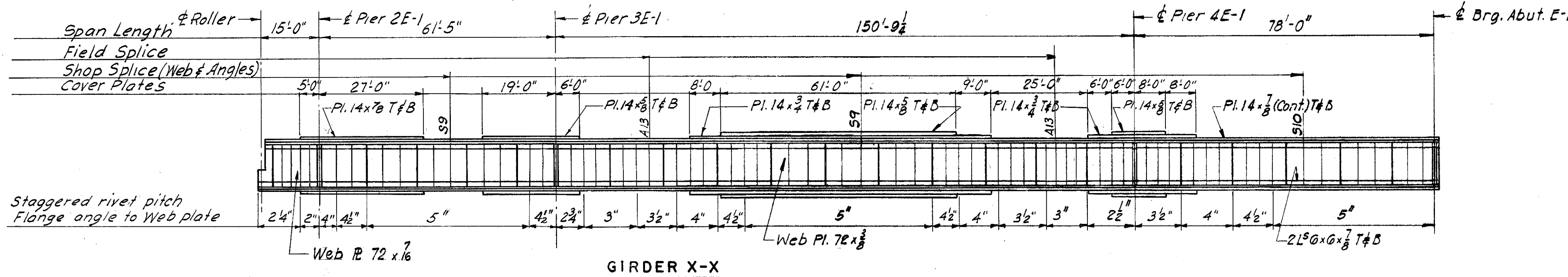
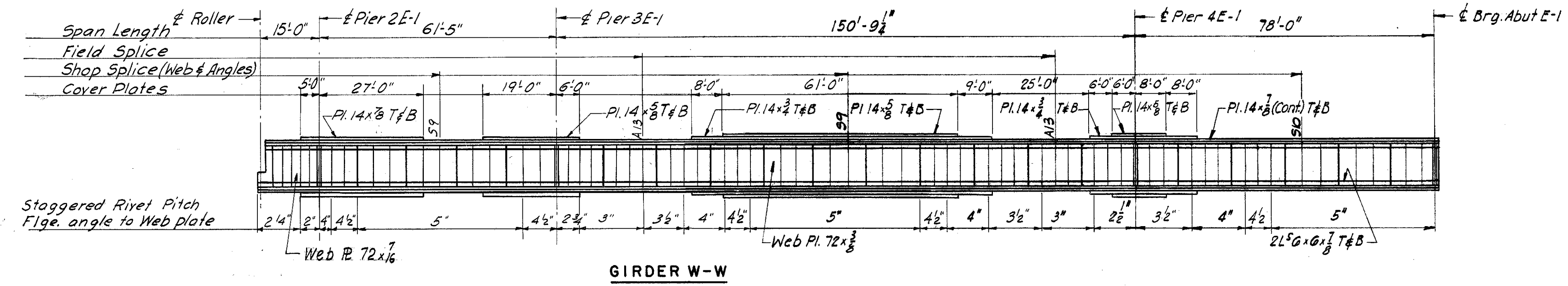
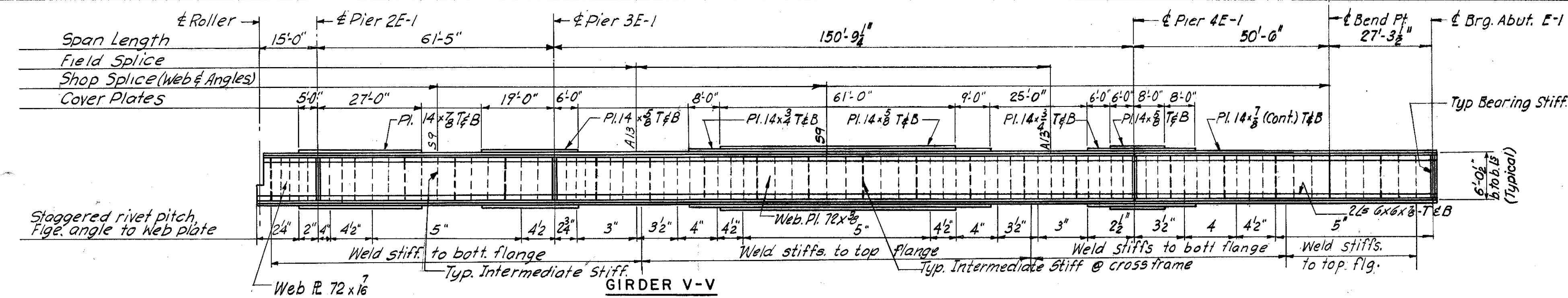
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) SHEET - 78A

REWORKED
FEB. 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

79
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:

- Material for all Girders to be Structural Carbon Steel.
- All rivets 7/8" φ.
- Intermediate Stiffeners for Girders V-V, W-W, X-X and Y-Y are 5 x 3 1/2 x 5/16 Ls on 8" fill pls. Crimp Stiffs. a maximum of 2". At Girders V-V & Y-Y use one Intermediate Stiffener on inside face of Girder. At Girders W-W and X-X use stiffeners on both sides of Web.
- Intermediate Stiffeners at crossframes for Girders V-V, W-W, X-X and Y-Y are 6 x 3 1/2 x 3/8 Ls on 8" fill pls. No crimping permitted.
- Bearing Stiffeners of Piers 3E-1, 4E-1 and Abutment E-1 are 4B 6 x 4 x 1/2. Bearing Stiffeners at Pier 2E-1 are 4B 6 x 4 x 1/2 and 2B 6 x 1/2. Bearing Stiffeners for all Girders to be milled to bear on flange angles, top and bottom.
- Longitudinal dimensions of Girders shown are measured horizontally along E of Web pl.
- All girders drawn looking North.
- For Splice Details, see Shs. 81 & 82.
- Staggered rivet pitch, Flange Angles to Cover Plates 3".
- For weld detail of intermediate stiffener, see Sh. 85.
- For Roller Details, see Shs. 86 & 86A.
- 72 x 1/2 Web R and 72 x 3/8 Web R to be spliced at Splice 59 nearest Pier 2E-1.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

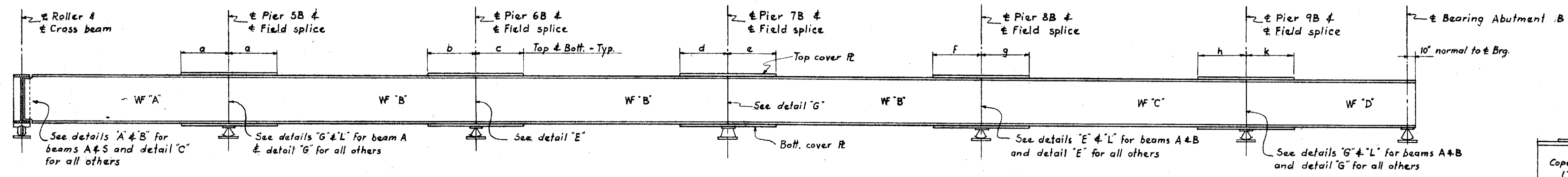
GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

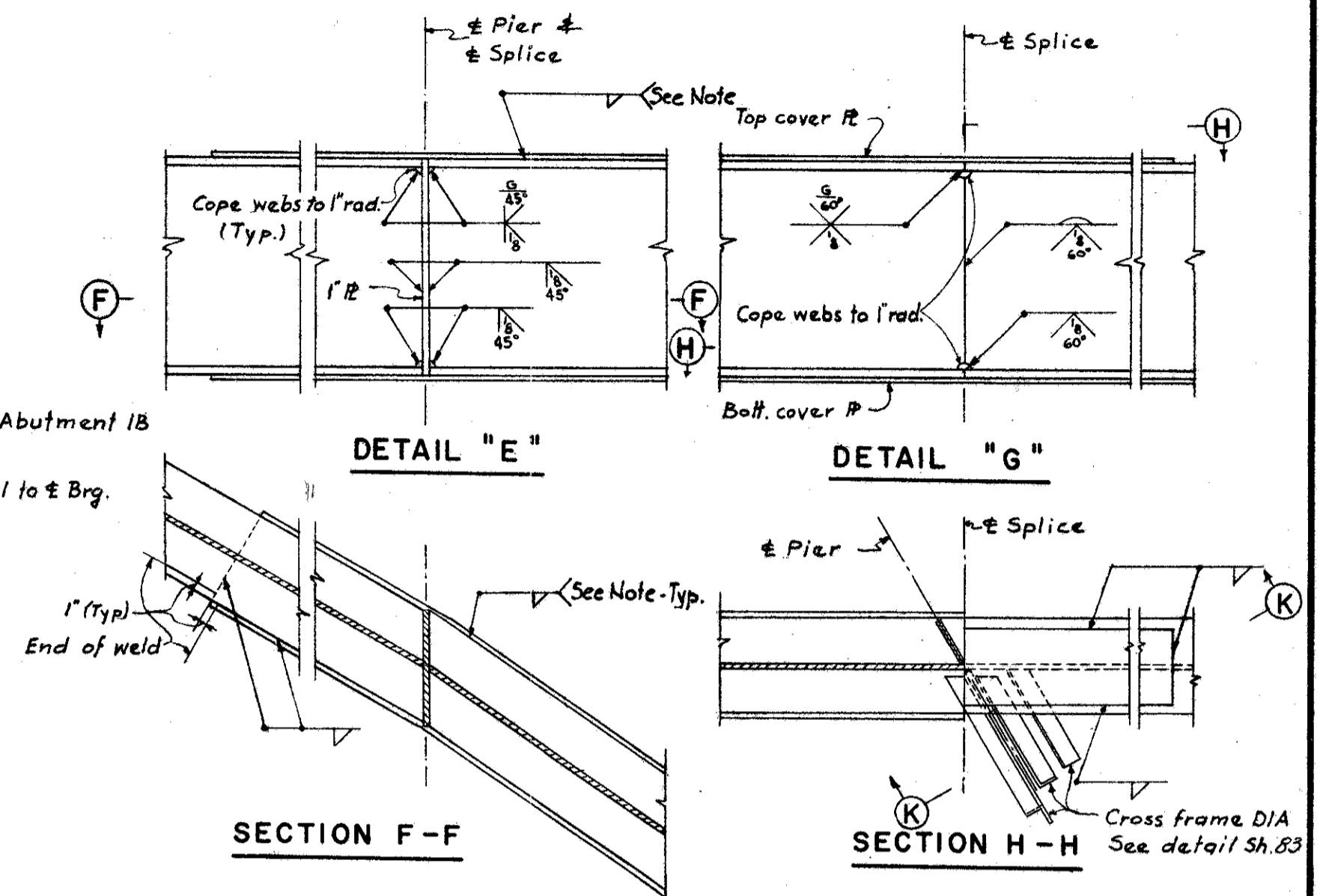
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MADE H.P.S. DATE 11-23-58
TRCD H.P.S. DATE 3-15-57
CHKD H.P.S. DATE 8-21-57

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-79

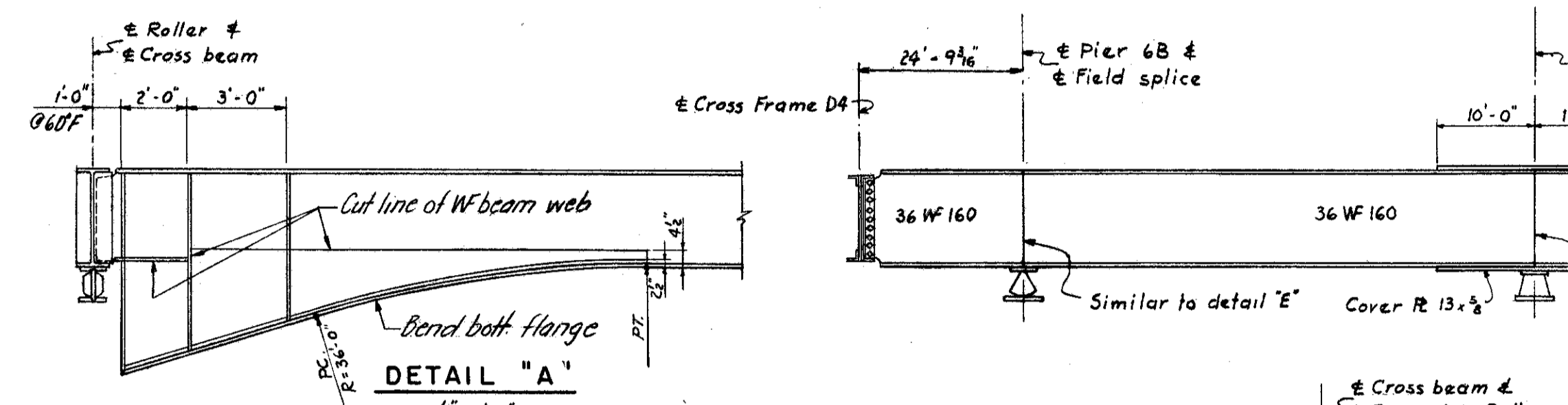
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(1743-18.02)



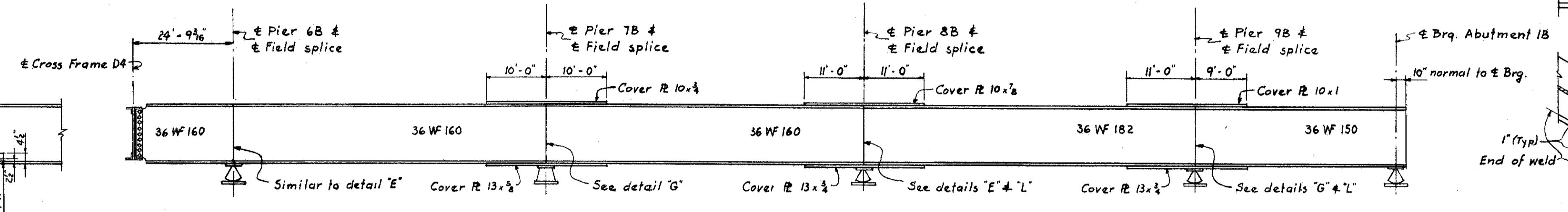
ELEVATION BEAMS A TO N & S
No scale



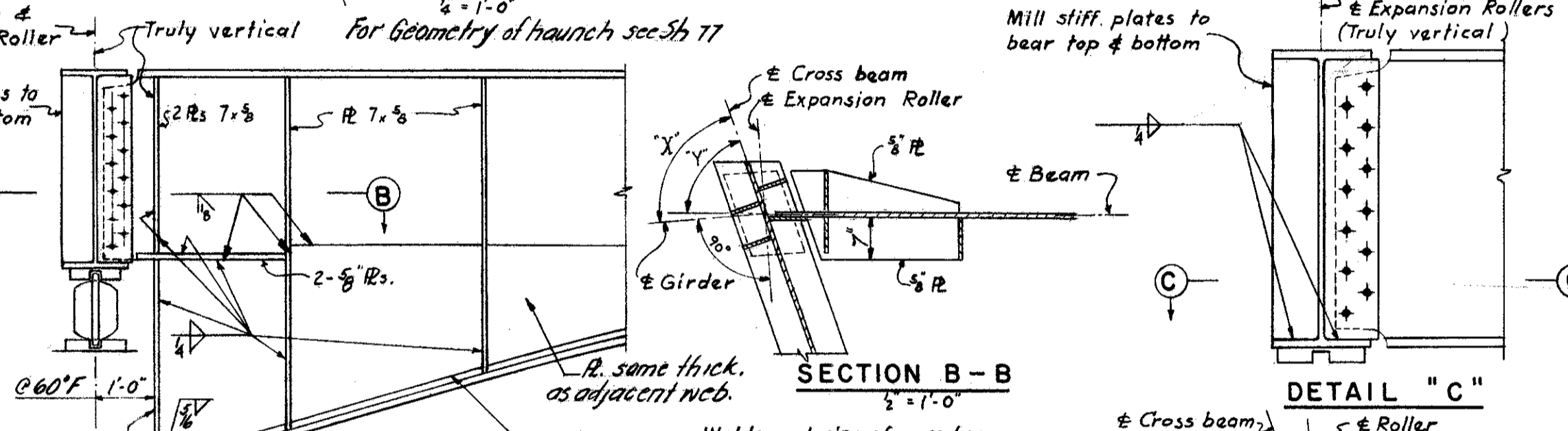
Note: Use 3/8 fillet welds for 36WF245 and 5/16 welds for all other beams



DETAIL "A"

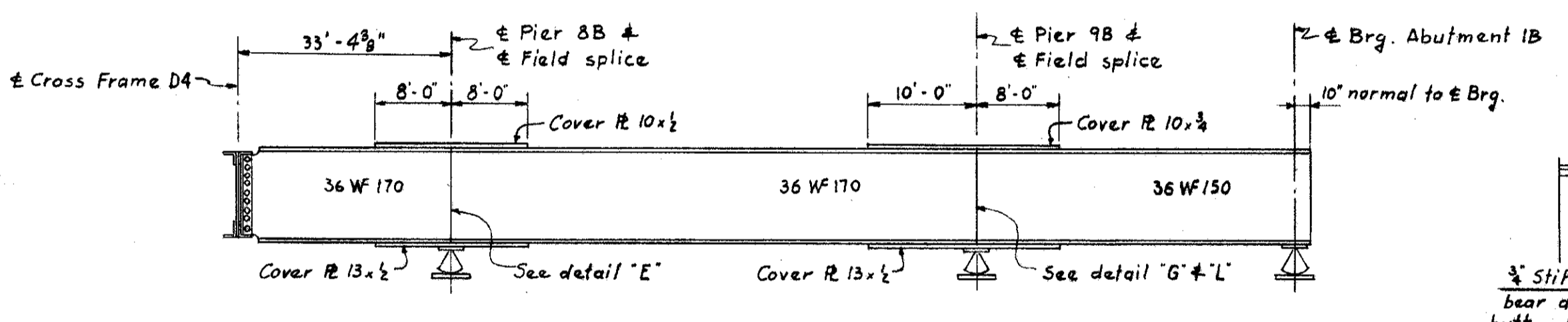


ELEVATION BEAM P
No scale

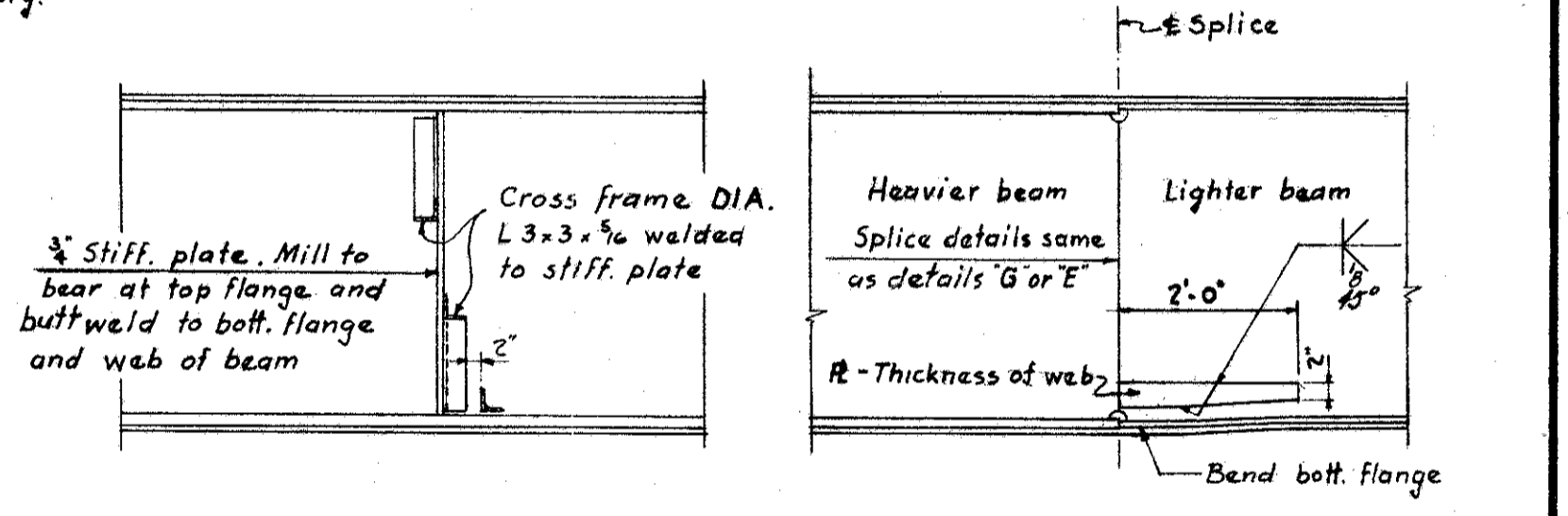


SECTION B-B

DETAIL "C"



ELEVATION BEAM R
No scale



SECTION K-K
DETAIL "L"

BEAM SPLICE DETAILS

Stringer	Beam Sections				Cover R's of Pier 5B			Cover R's of Pier 6B			Cover R's of Pier 7B			Cover R's of Pier 8B			Cover R's of Pier 9B								
	WF "A"	WF "B"	WF "C"	WF "D"	Top R	Bot. R	a	Top R	Bot. R	b	c	Top R	Bot. R	d	e	Top R	Bot. R	f	g	Top R	Bot. R	h	k		
A	36 WF 245	36 WF 230	36 WF 245	36 WF 230	13 x 1/16	18 x 1/16	10'-0"	13 x 1/16	18 x 1/16	10'-0"	10'-0"	13 x 3/4	18 x 1/16	10'-0"	10'-0"	13 x 1	18 x 1/16	11'-0"	11'-0"	13 x 1/16	18 x 1/16	10'-0"	8'-0"		
B	36 WF 230		36 WF 245									13 x 3/4													
C			36 WF 230									13 x 1/16													
D												13 x 7/8	18 x 3/4												
E												13 x 7/8	18 x 3/4												
F												13 x 7/8	18 x 3/4												
G							10'-0"			10'-0"	10'-0"			10'-0"	10'-0"	13 x 3/4	18 x 1/16	11'-0"	11'-0"	13 x 1/16	18 x 1/16	10'-0"	8'-0"		
H							7'-0"			7'-0"	7'-0"			7'-0"	7'-0"	13 x 1/16				None	None				
J							8'-0"			9'-6"	10'-0"			9'-6"	10'-0"			10'-0"	10'-6"	13 x 1/16	18 x 1/16	9'-0"	7'-0"		
K																									
L																									
M																									
N							13 x 1/16	18 x 1/16	8'-0"	13 x 1/16	18 x 1/16	9'-6"	10'-0"	13 x 1/16	18 x 1/16	9'-6"	10'-0"	13 x 1/16	18 x 1/16	10'-0"	10'-6"	13 x 1/16	18 x 1/16	9'-0"	7'-0"
S	36 WF 230	36 WF 230	36 WF 230	36 WF 230	13 x 1/16	18 x 1/16	7'-0"	None	None	9'-6"	10'-0"	None	None	None	None	None	None	None	None	None	None	None	None	None	

TABLE OF BEAM SECTIONS AND COVER PLATES

Beam	Splice at Pier 7B	Splice at Pier 8B	Splice at Pier 6B	Splice at Pier 5B	Splice at Pier 9B					
A & B	Raise of Pier 6B or Raise of Pier 8B	3 1/4 3 1/4	Raise of Pier 9B	2 1/4	Raise of Pier 5B	2 1/4	Raise of Exp joint	1 1/2	Raise of Abutment	1 1/2
C to G	Raise of Pier 6B or Raise of Pier 8B	3 3	Raise of Pier 9B	2 1/4	Raise of Pier 5B	2 1/4	Raise of Exp joint	1 1/2	Raise of Abutment	1 1/2
H to N	Raise of Pier 6B or Raise of Pier 8B	2 1/2 2 1/2	Raise of Pier 9B	2 1/2	Raise of Pier 5B	2 1/4	Raise of Exp joint	1 1/2	Raise of Abutment	1 1/2
P	Raise of Pier 6B	2 1/4	Raise of Pier 9B	3 1/4	Raise end of stub beam	3/4			Raise of Abutment	1 1/2
R			Raise end of stub beam	1 1/4					Raise of Abutment	1 1/4

FIELD SPLICE WELDING PROCEDURE:

1. Raise the ends of beams to amounts as indicated in the table above. (See Note.)
 2. Butt-weld the beam flanges and web. Make one pass in each flange, then in the web; repeat until welds are completed.
 3. Weld the bottom and top cover plates.
 4. Lower the beam ends to final position.
- Note: For beams A to N & S: Make splice welding in order shown in table above. Do not lower beams to final position at Rollers & Abut. before last splices at piers 5B & 9B have been completed.
- For beam P: Make splice welding at piers 6B & 8B; then splice at piers 7B & 9B. Lower beam into final position at pier 6B & Abut. after welding has been completed.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

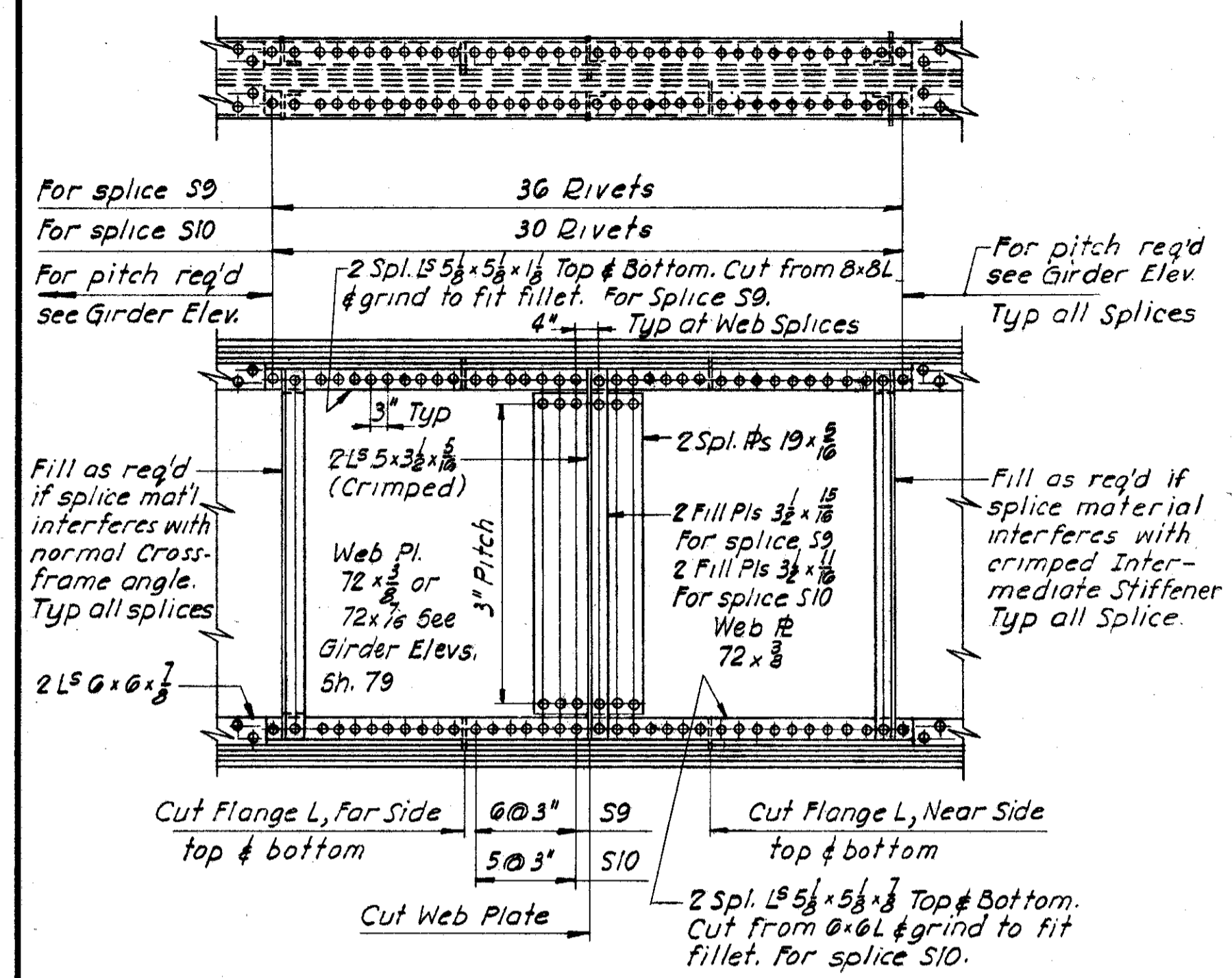
UNIT 2-BEAM ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

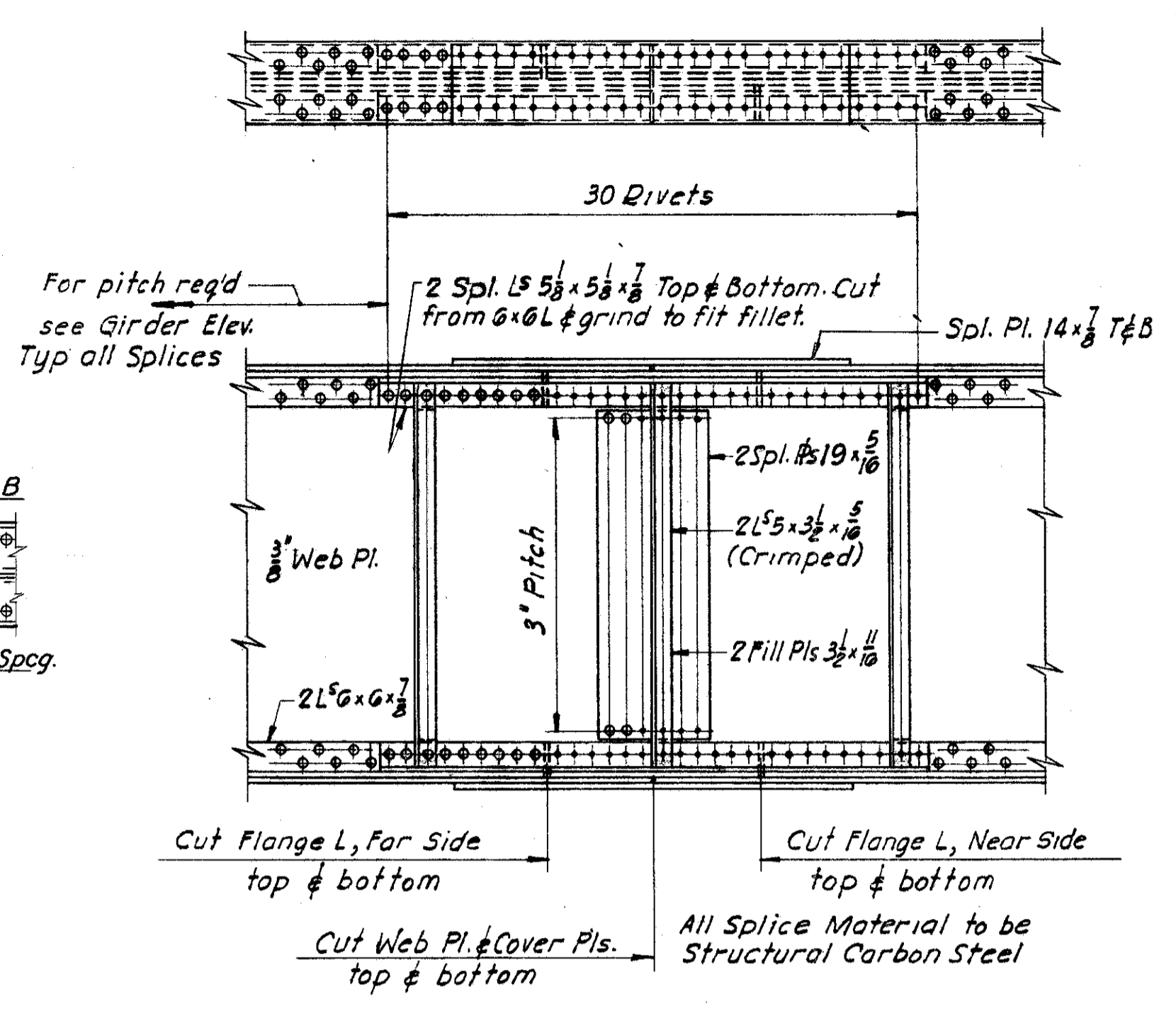
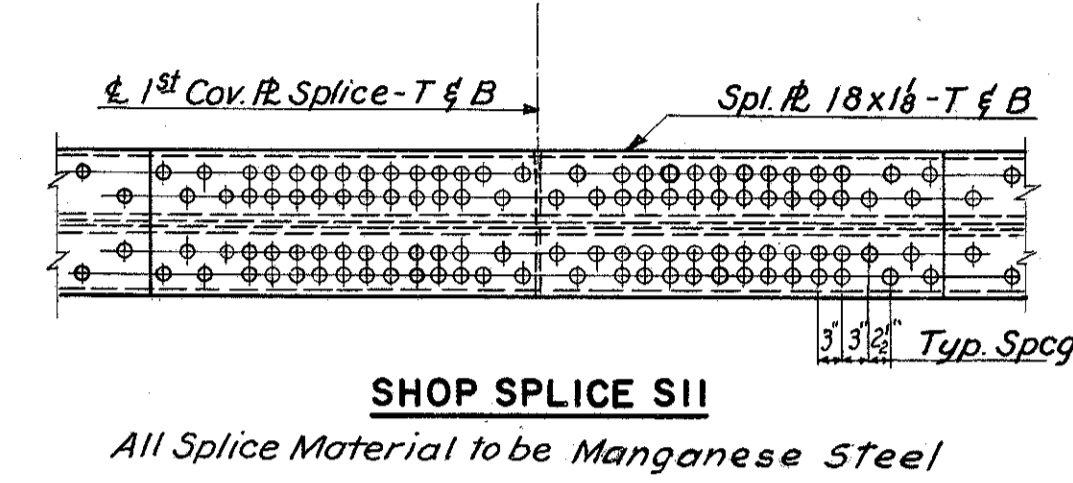
SCALE: As noted
MADE I.A.F. DATE 11-18-56
TRCD N.R.K. DATE 3-14-57
CHK. B.W. DATE 2-25-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-80

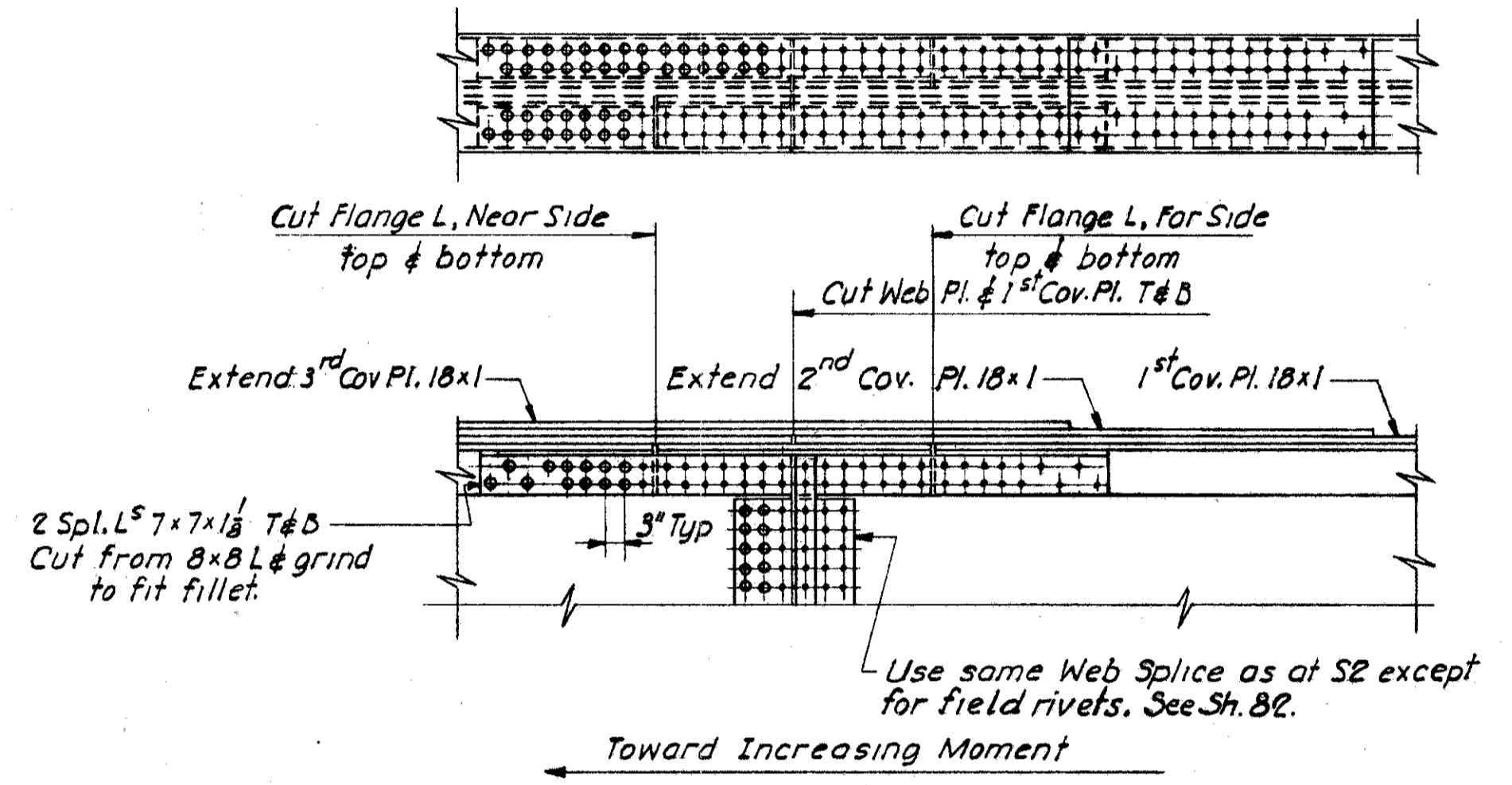
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)



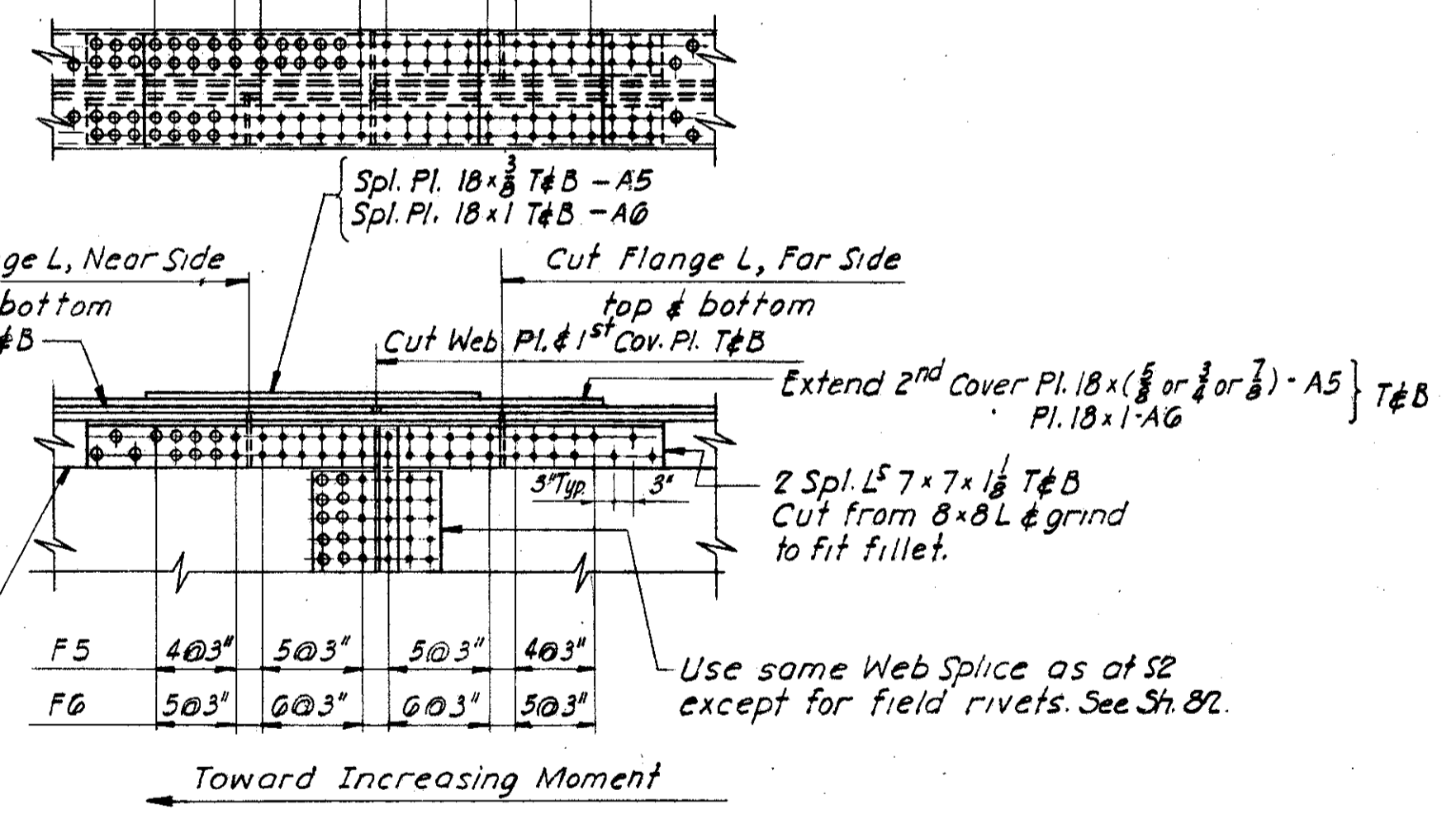
SHOP SPLICE S9 & S10
All Splice Material to be Structural Carbon Steel



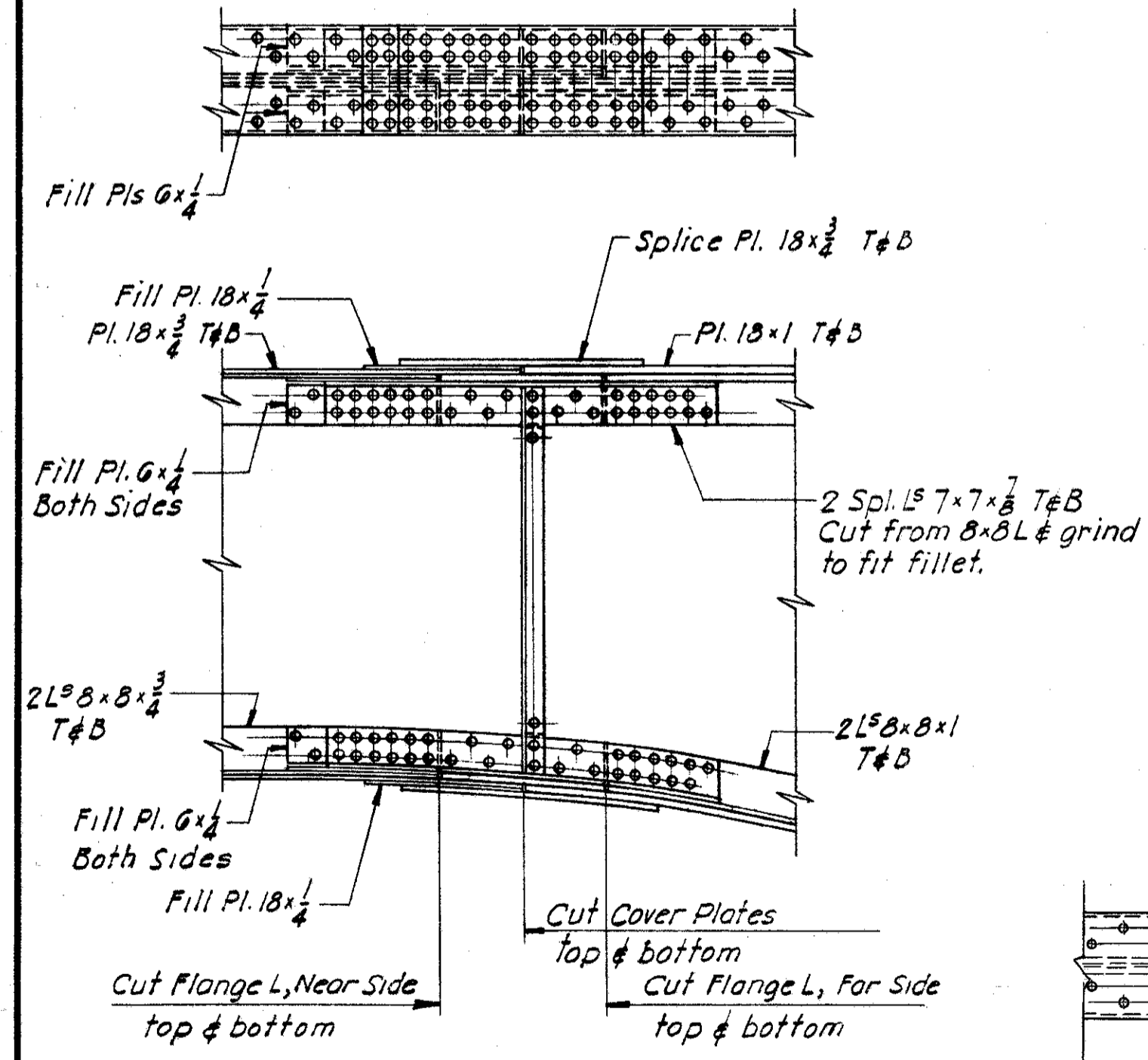
FIELD SPLICE A13



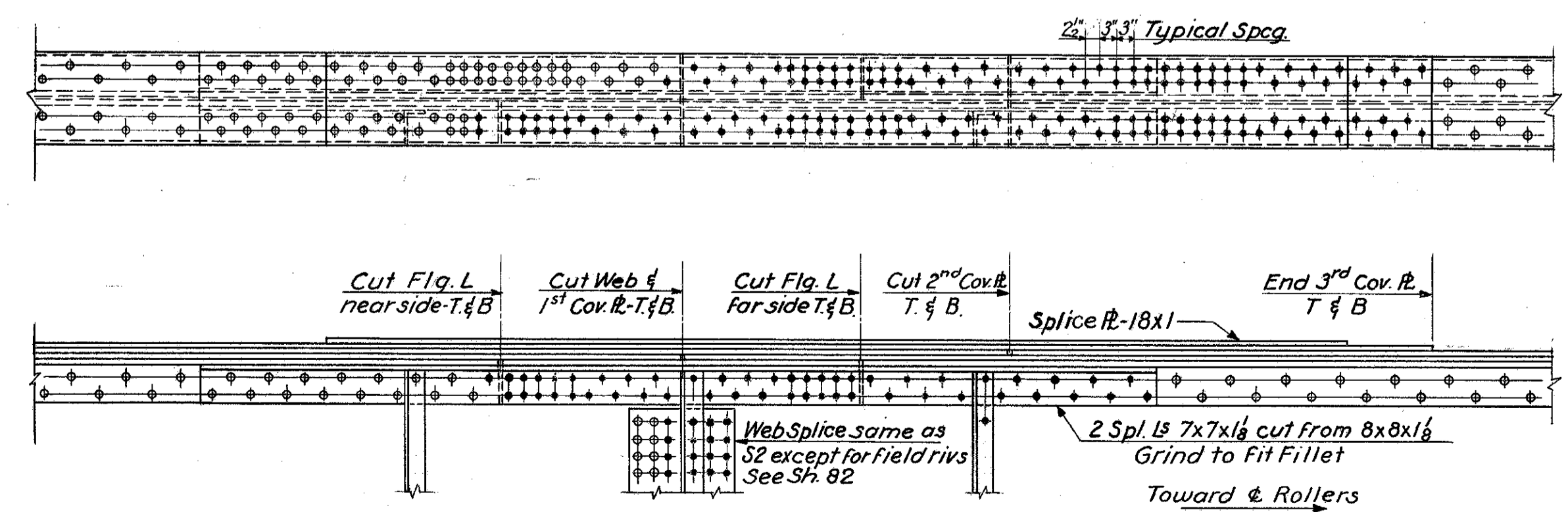
A5	4@3"	5@3"	5@3"	4@3"
A0	5@3"	6@3"	6@3"	5@3"



FIELD SPLICE A5 & A6
All Splice Material to be Manganese Steel



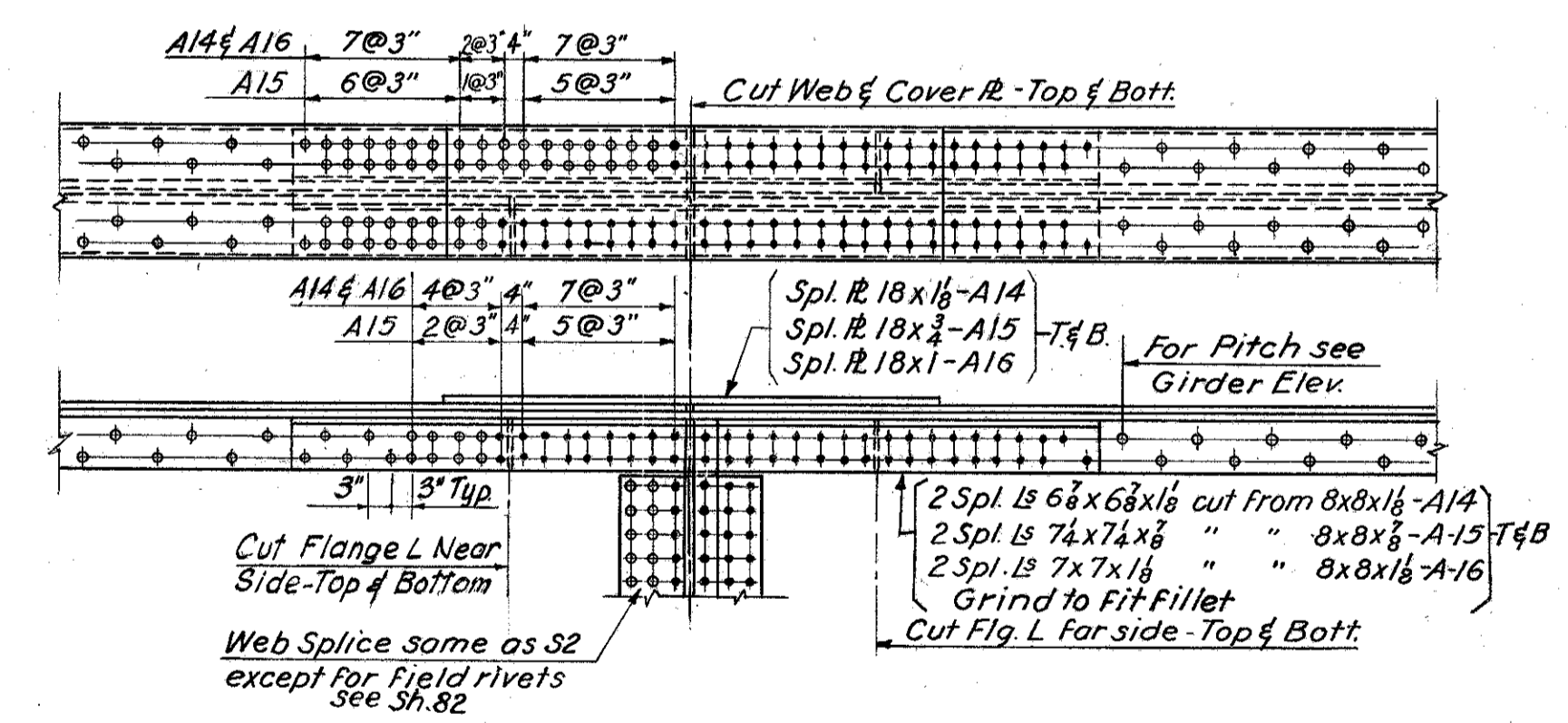
SHOP SPLICE S7
All Splice Material to be Structural Carbon Steel



FIELD SPLICE A20
All Splice Material to be Manganese Steel

END COVER PLATE DEVELOPMENT

R 18 x 1 1/2	26 spa @ 2 1/2"
R 18 x 1	23 spa @ 2 1/2"
R 18 x 3/4	20 spa @ 2 1/2"
R 18 x 5/8	17 spa @ 2 1/2"
R 18 x 1/2	14 spa @ 2 1/2"
R 14 x 7/8	11 spa @ 2 1/4"
R 14 x 3/4	9 spa @ 2 1/4"
R 14 x 5/8	8 spa @ 2 1/4"
R 14 x 1/2	6 spa @ 2 1/4"



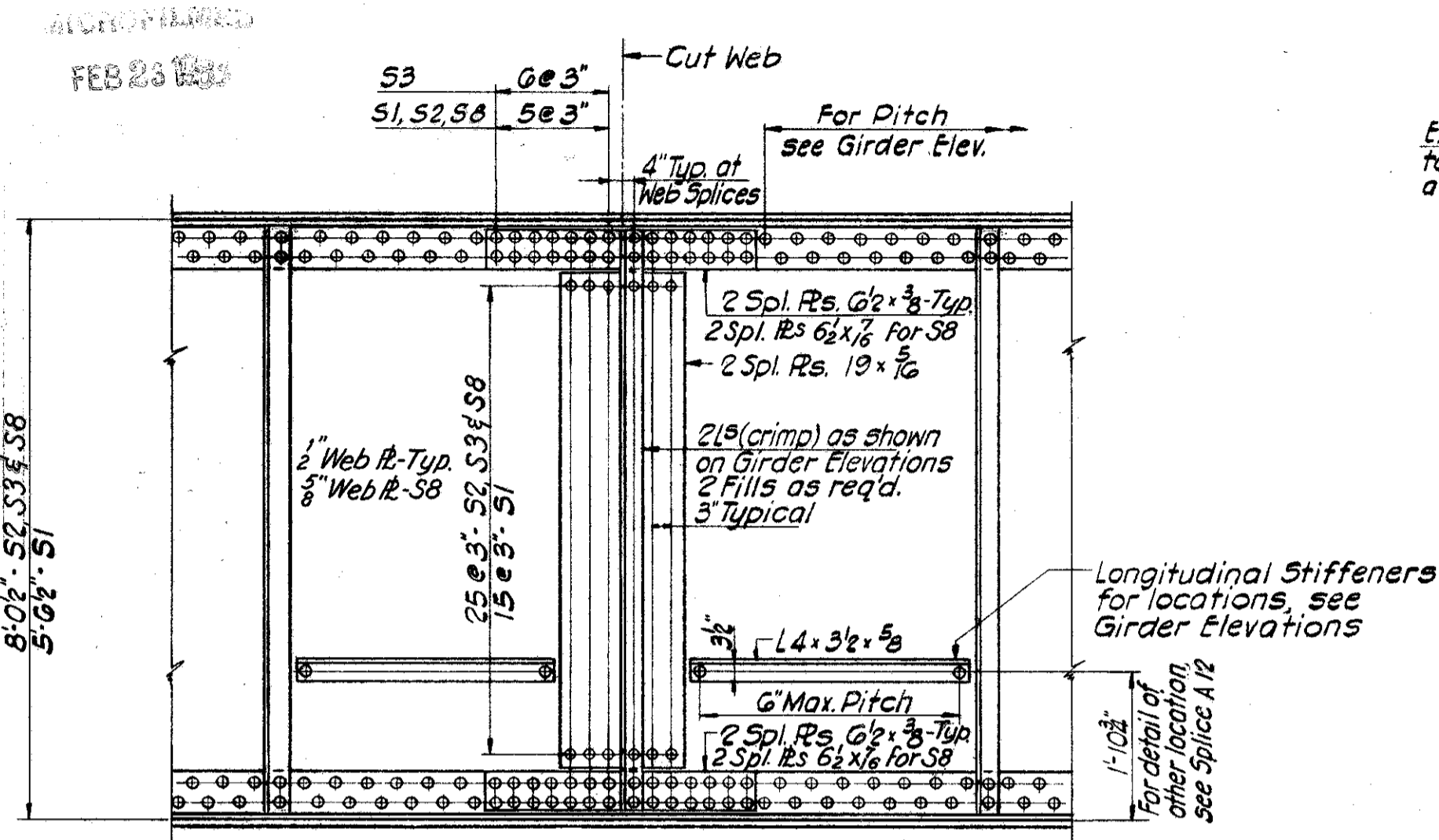
FIELD SPLICE A14, A15 & A16
All Splice Material to be Manganese Steel

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
GIRDER SPLICES
CLEVELAND CUYAHOGA COUNTY OHIO

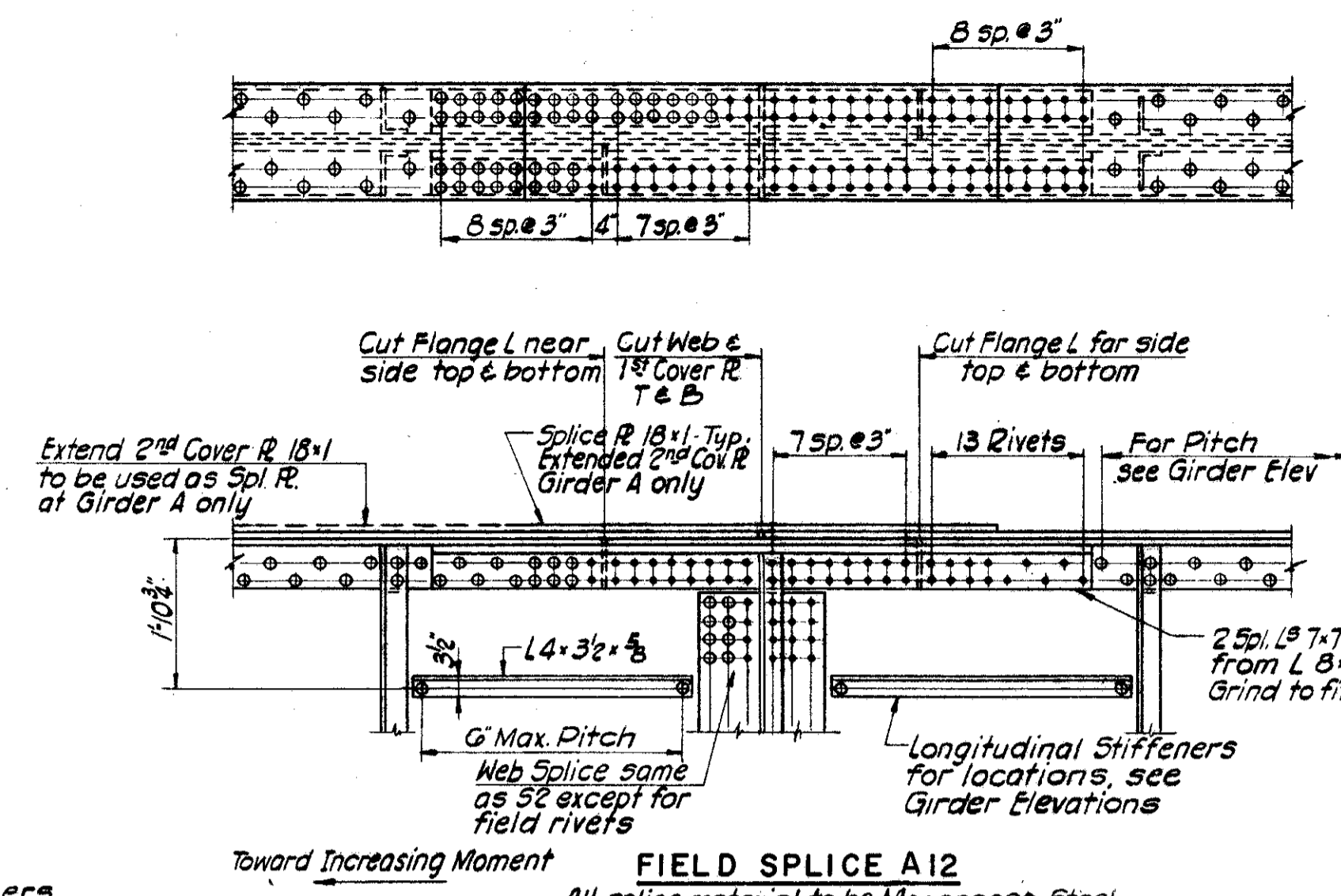
SCALE 1/2" = 1'-0"
MADE M.F.S. DATE 1-16-57
TRCD N.R.S. DATE 3-14-57
CND 2-1-57 DATE 2-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-81

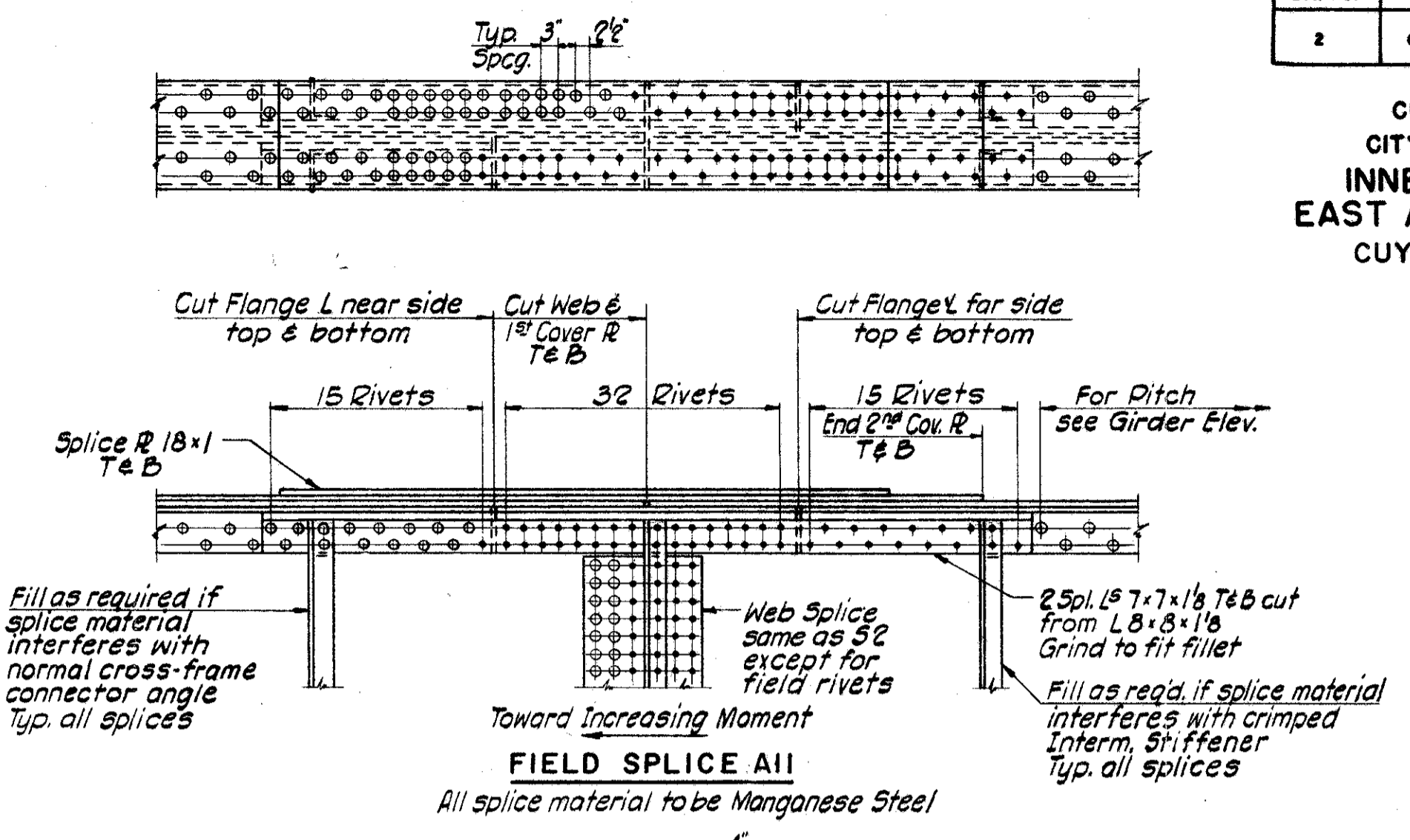
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)



SHOP SPLICE S1, S2, S3 & S8
All splice material for S1 to be Struct. Carbon Steel
All splice material for S2, S3 & S8 to be Manganese Steel.

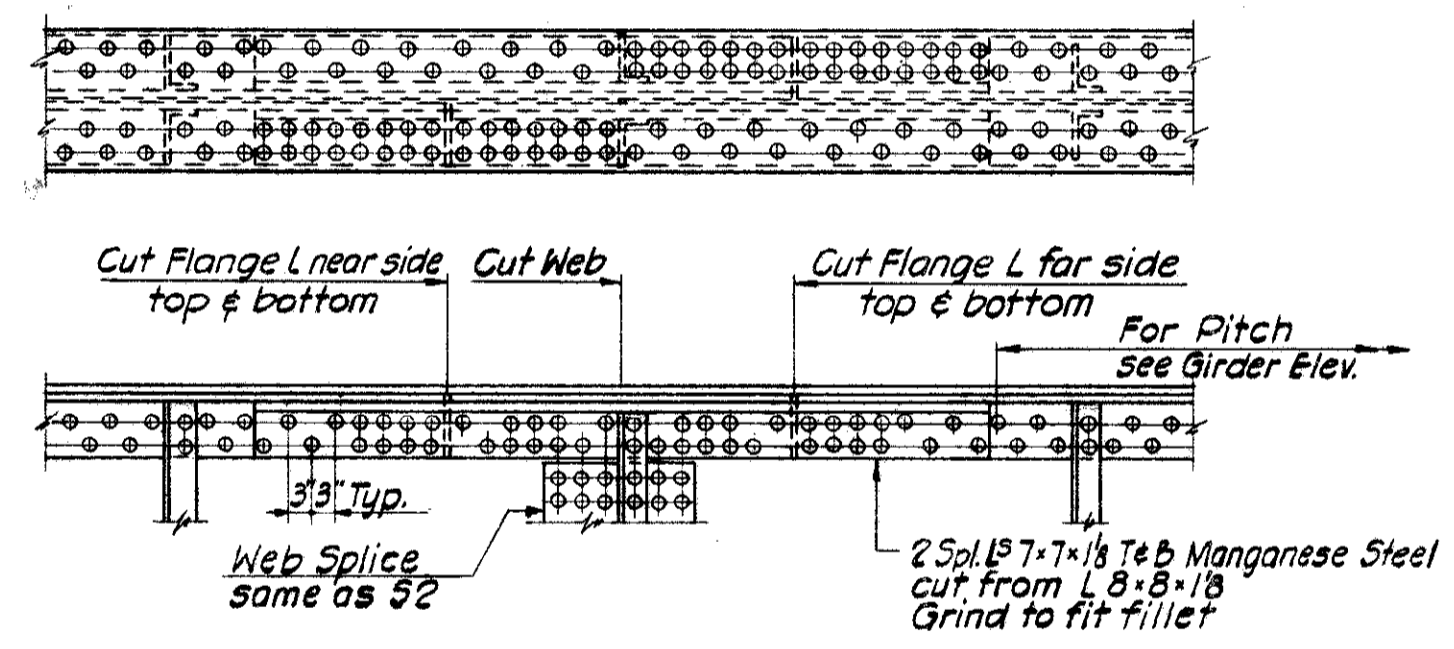


FIELD SPLICE A12
All splice material to be Manganese Steel

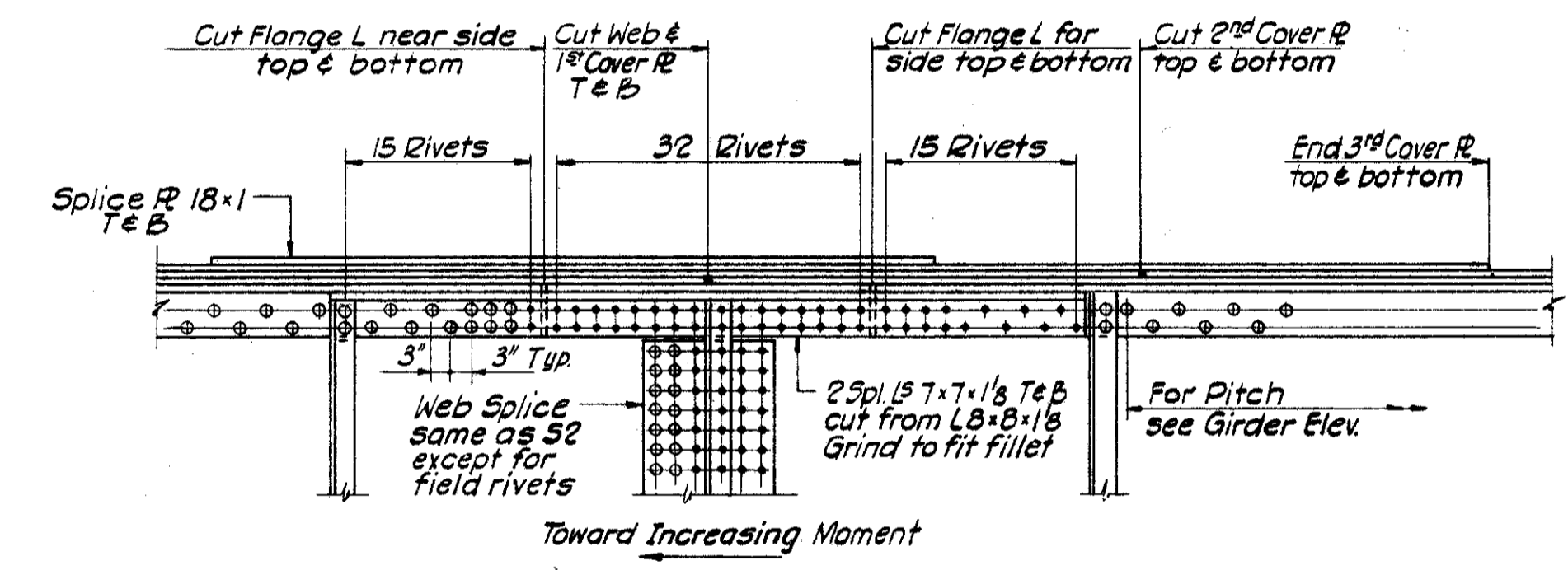


FIELD SPLICE A11
All splice material to be Manganese Steel

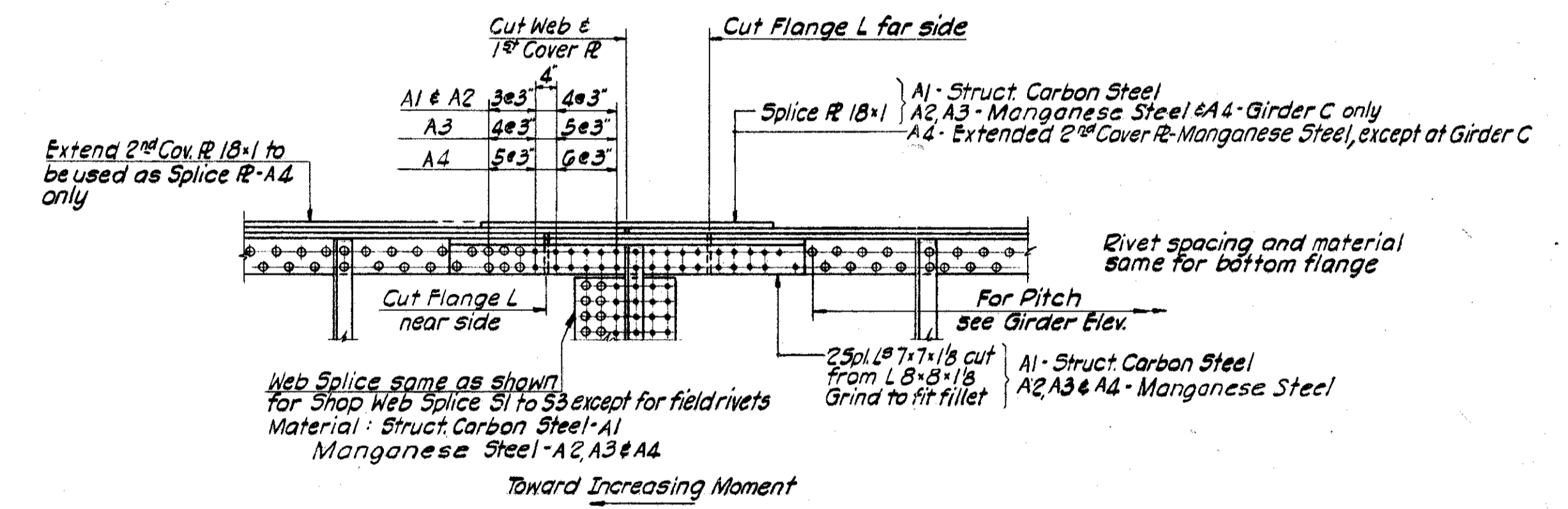
A1	2x3x3/8	4x3"
A2	3x3x3/8	4x3"
A3	3x3x1/2	5x3"
A4	4x3x1/2	6x3"



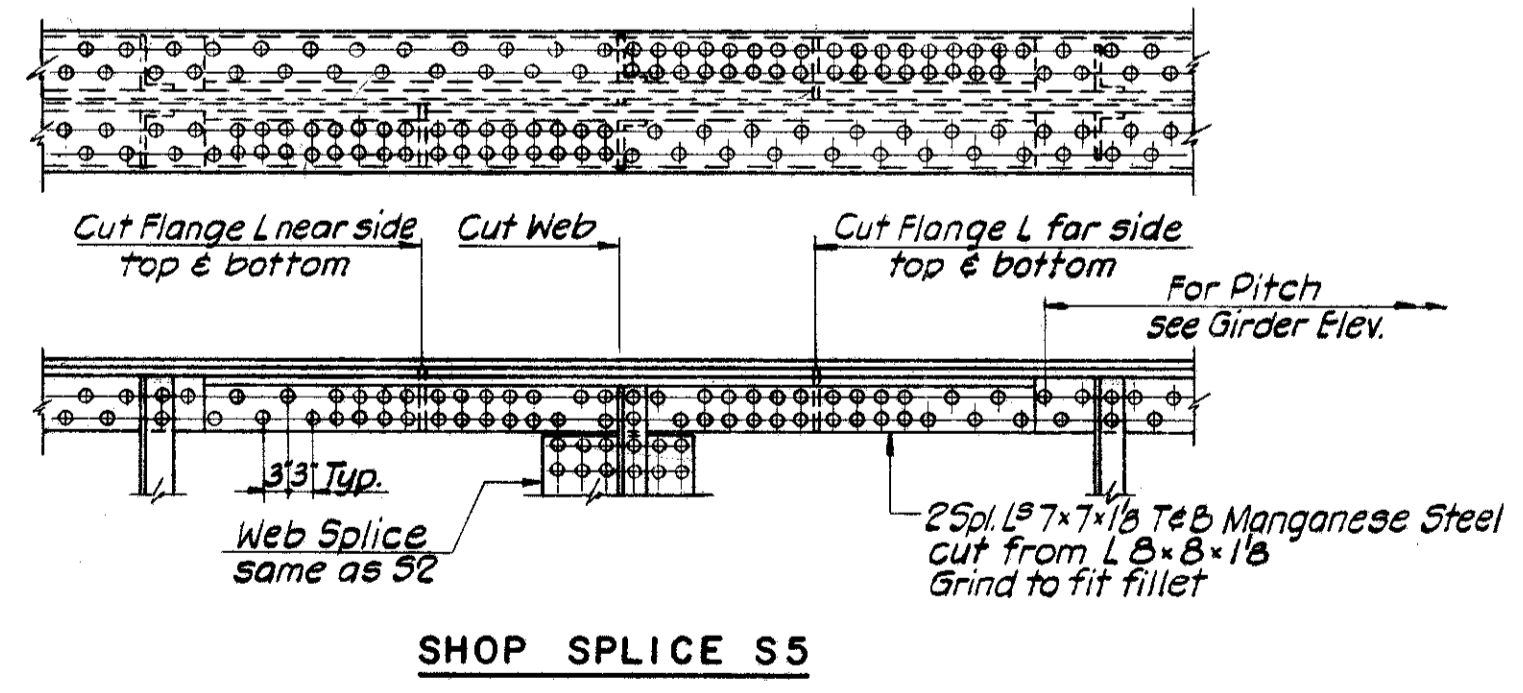
SHOP SPLICE S4



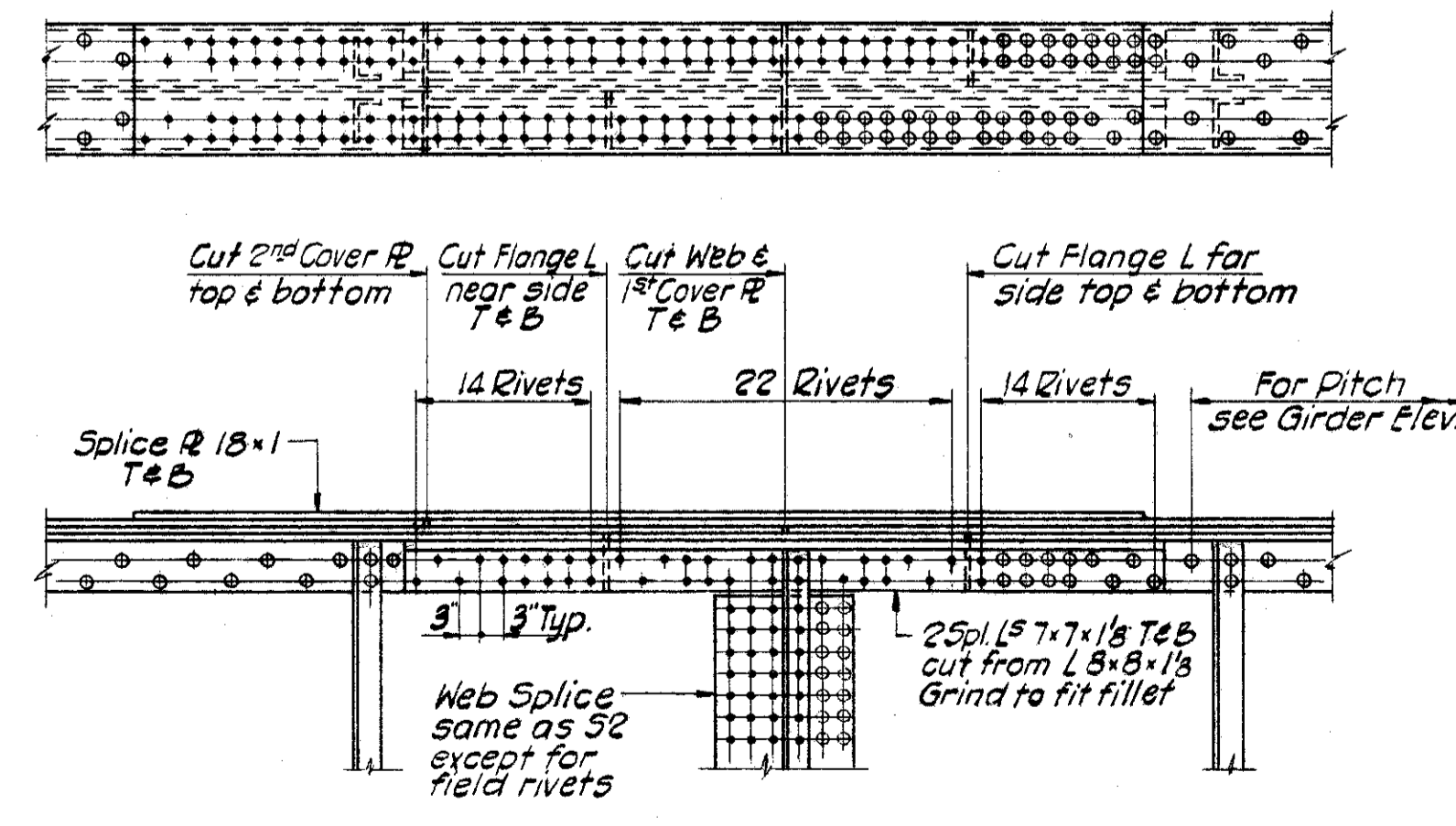
FIELD SPLICE A10
All splice material to be Manganese Steel



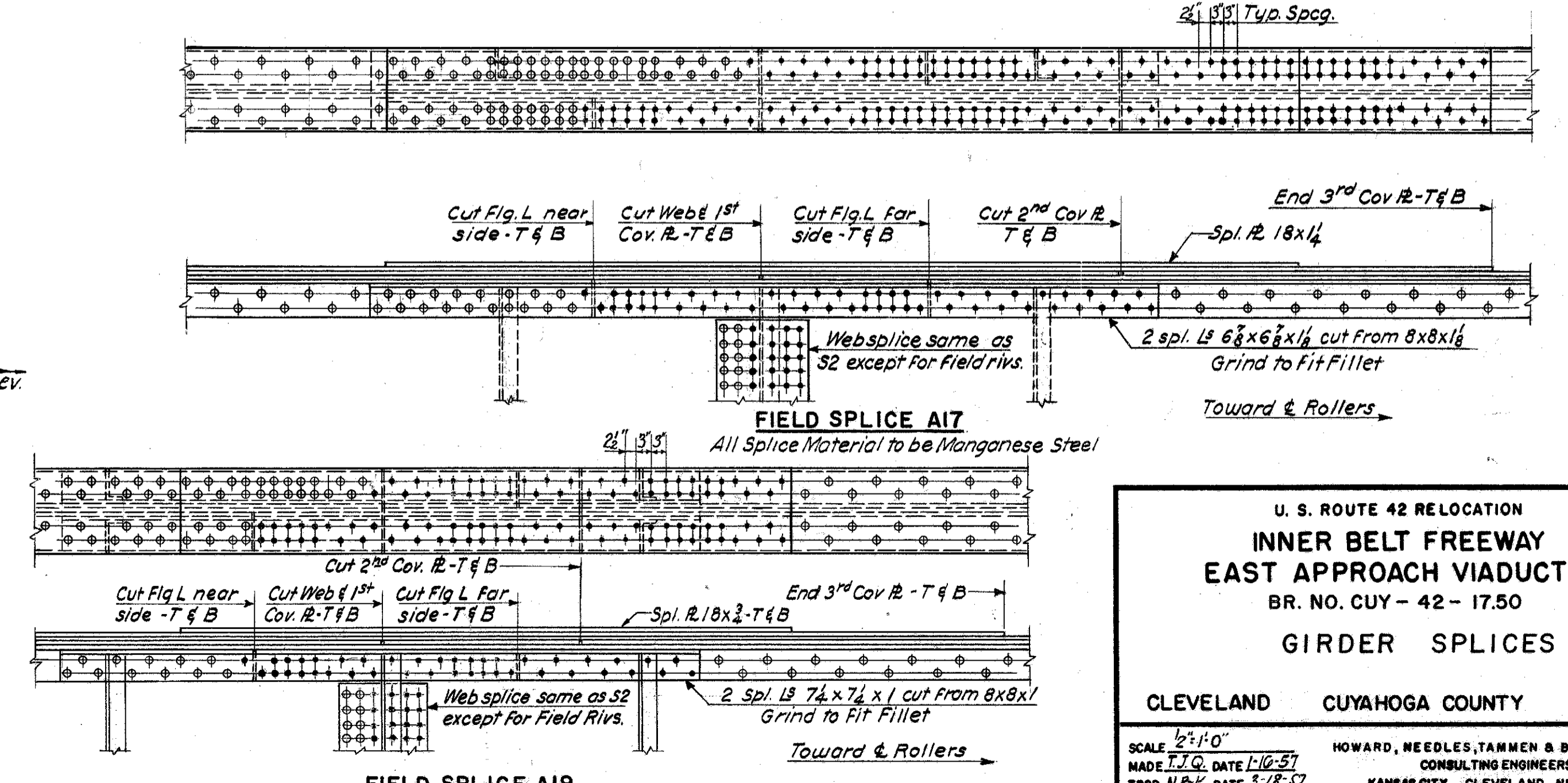
FIELD SPLICE A1, A2, A3, & A4



SHOP SPLICE S5

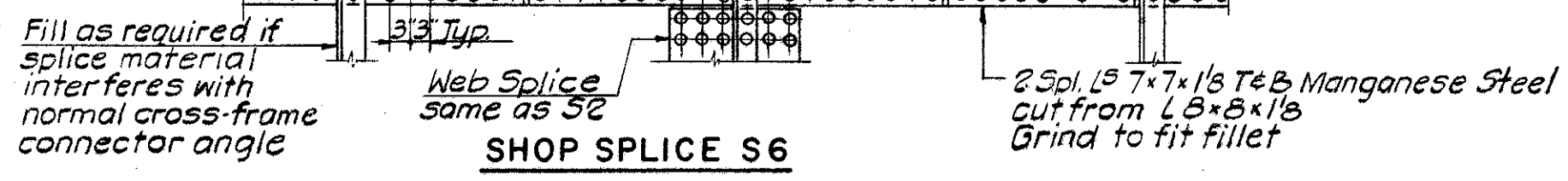


FIELD SPLICE A8
All splice material to be Manganese Steel



FIELD SPLICE A17
All Splice Material to be Manganese Steel

FIELD SPLICE A19
All Splice Material to be Manganese Steel



SHOP SPLICE S6

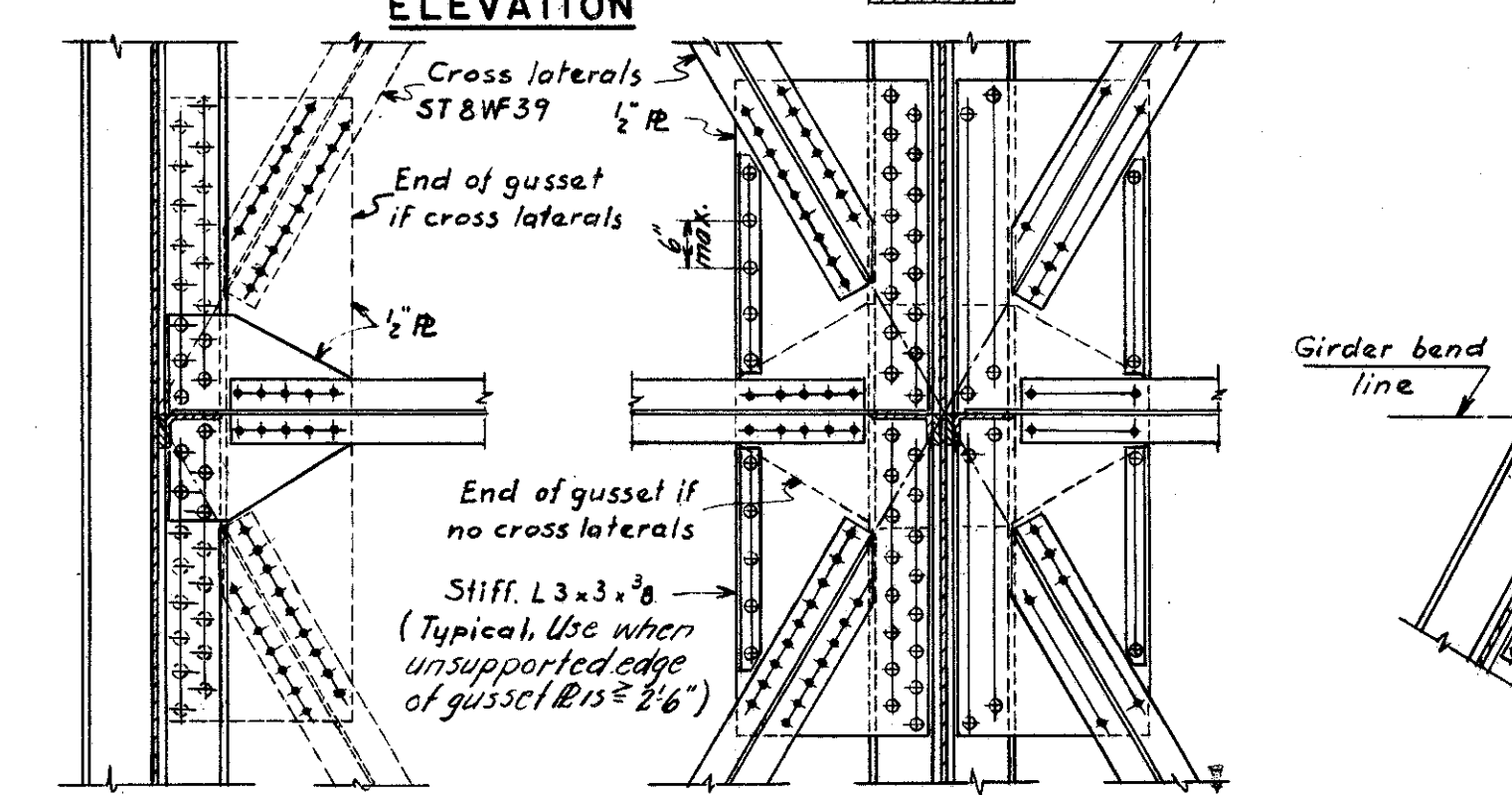
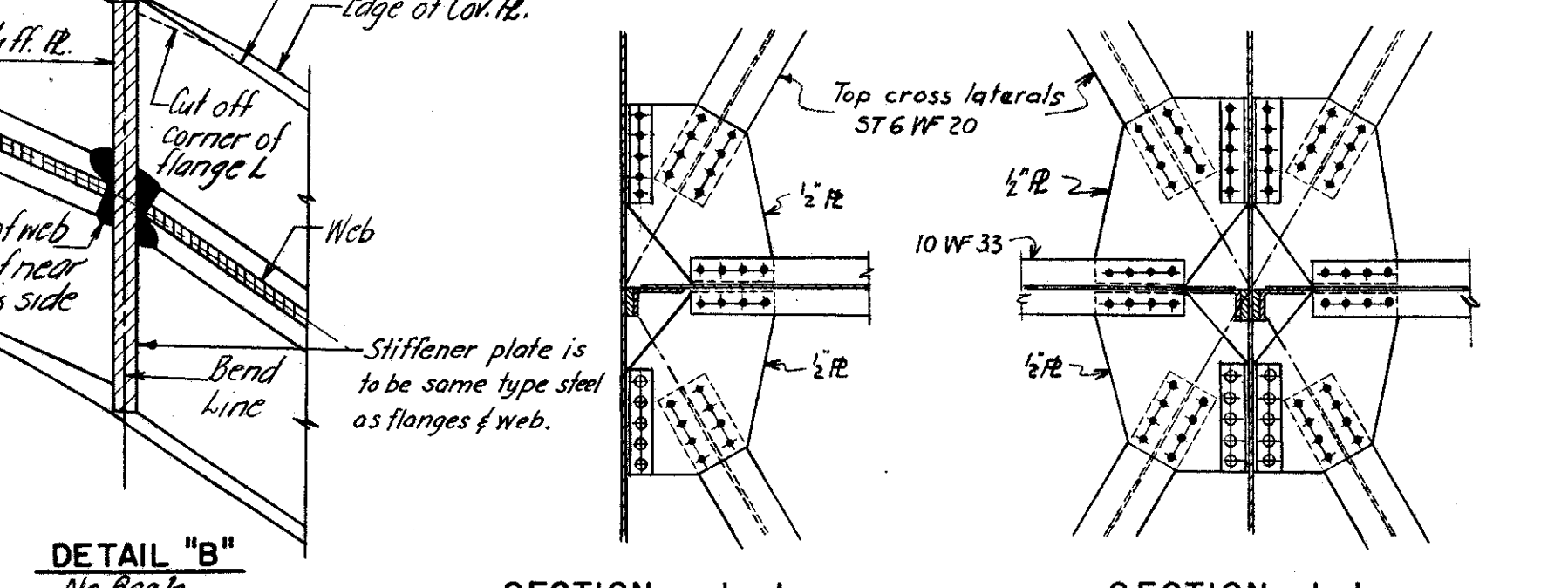
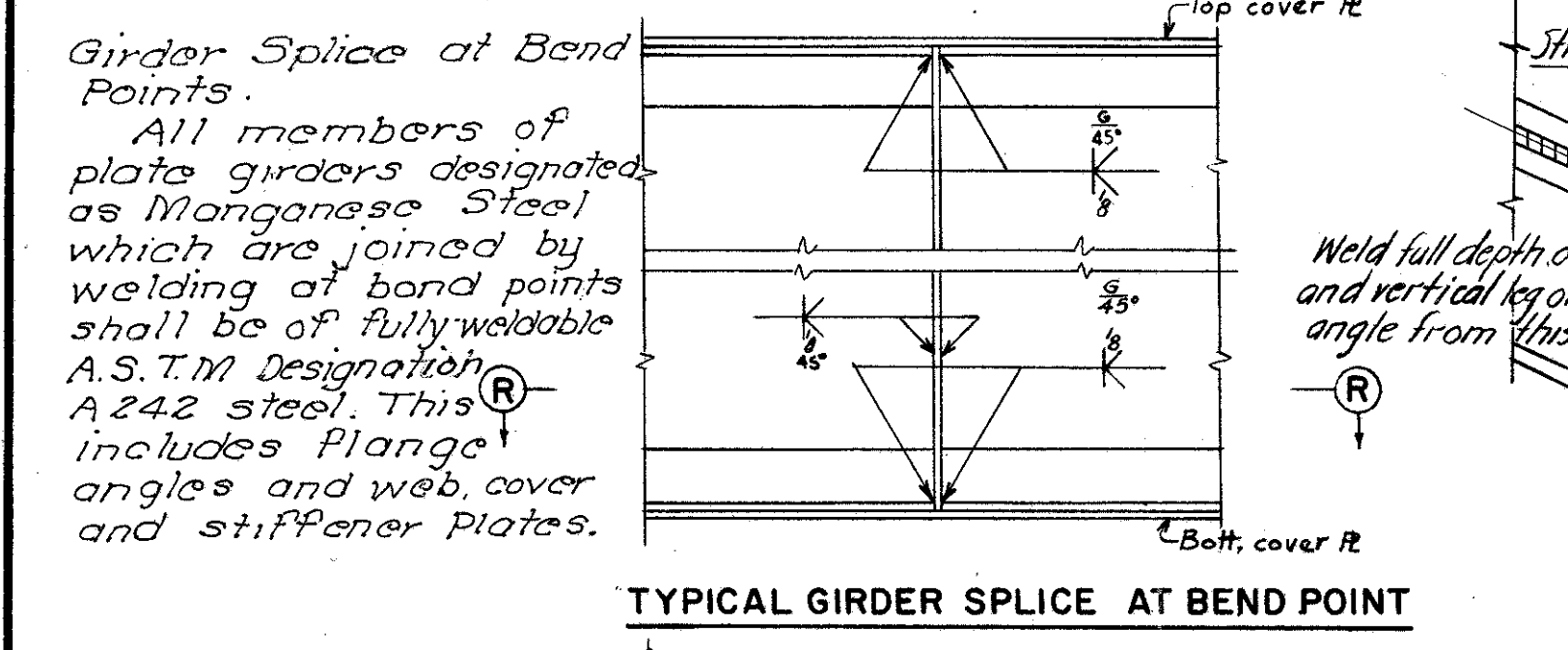
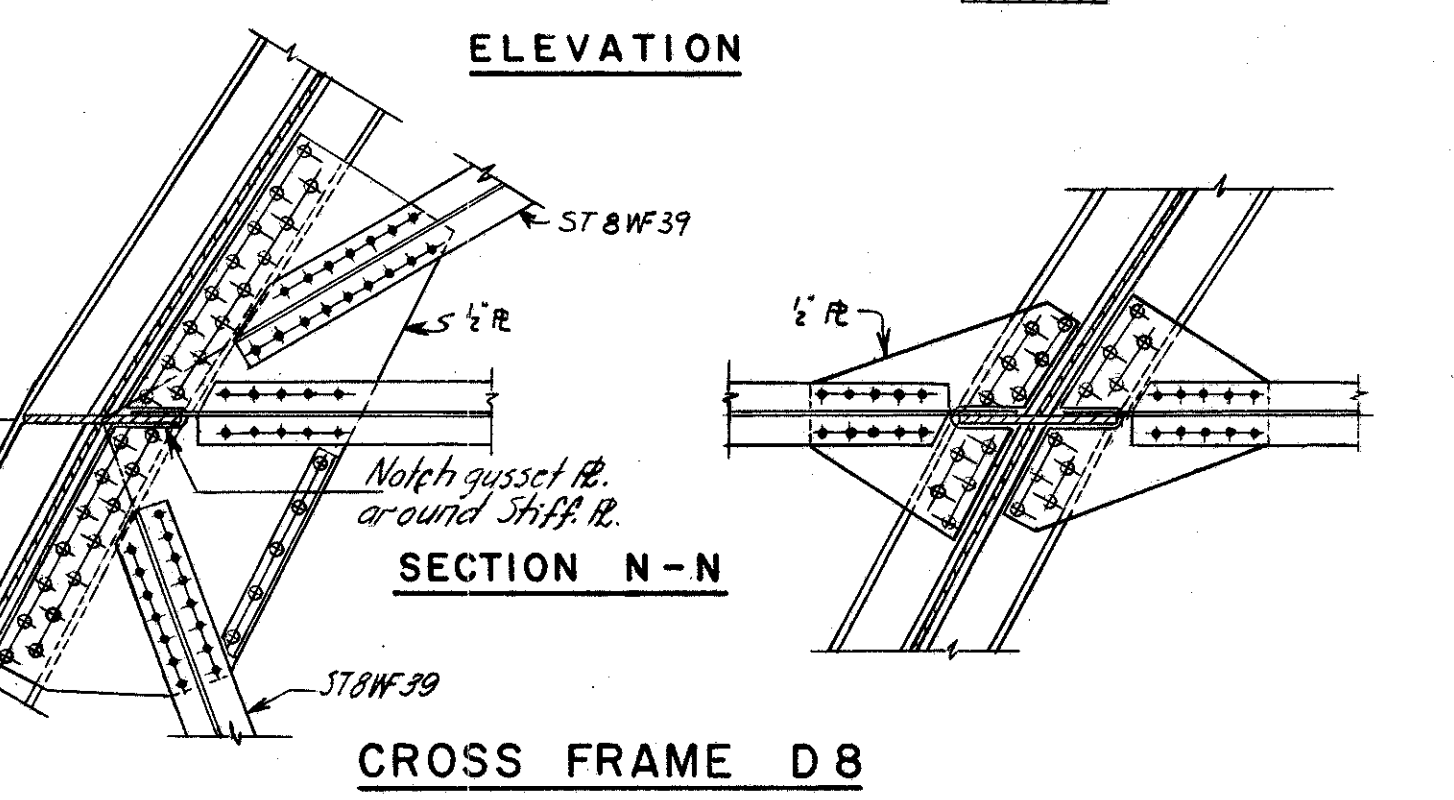
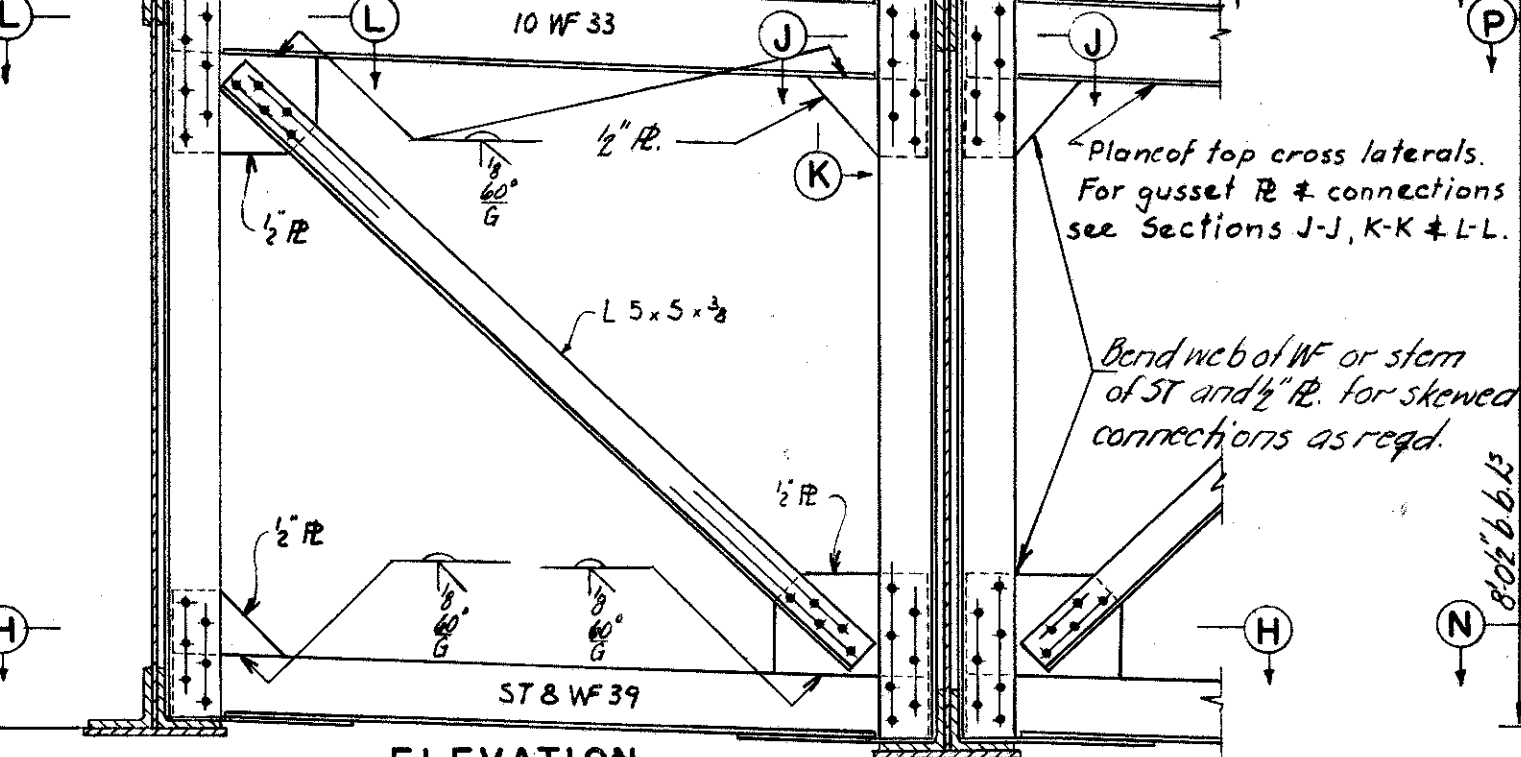
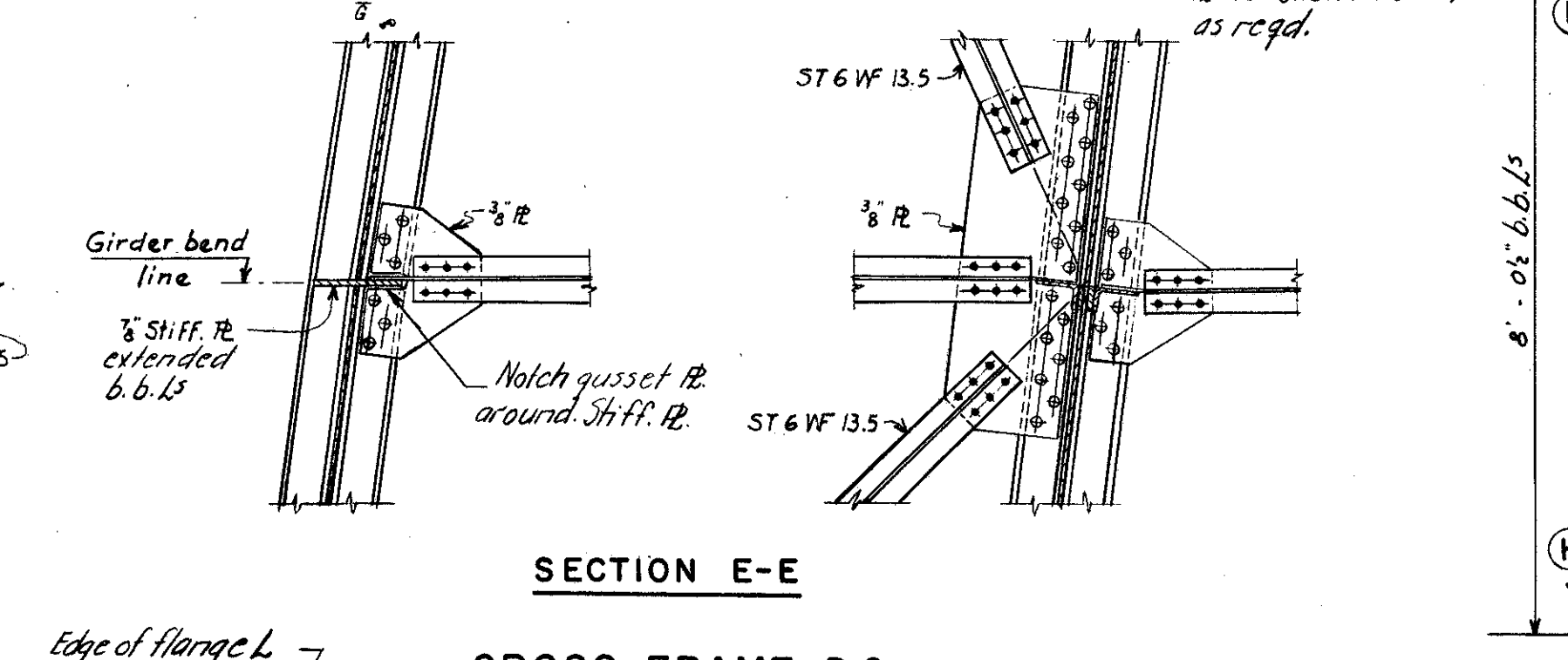
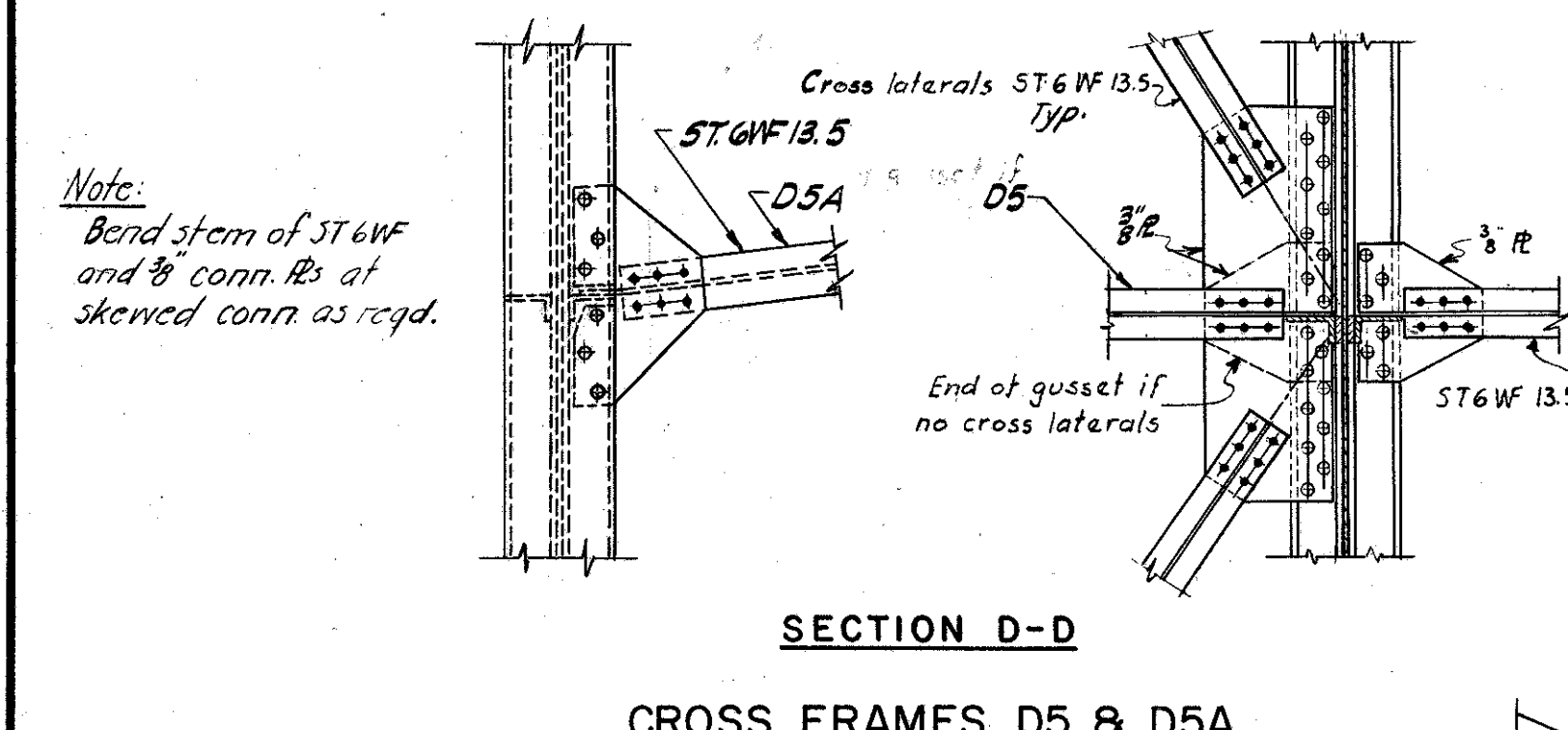
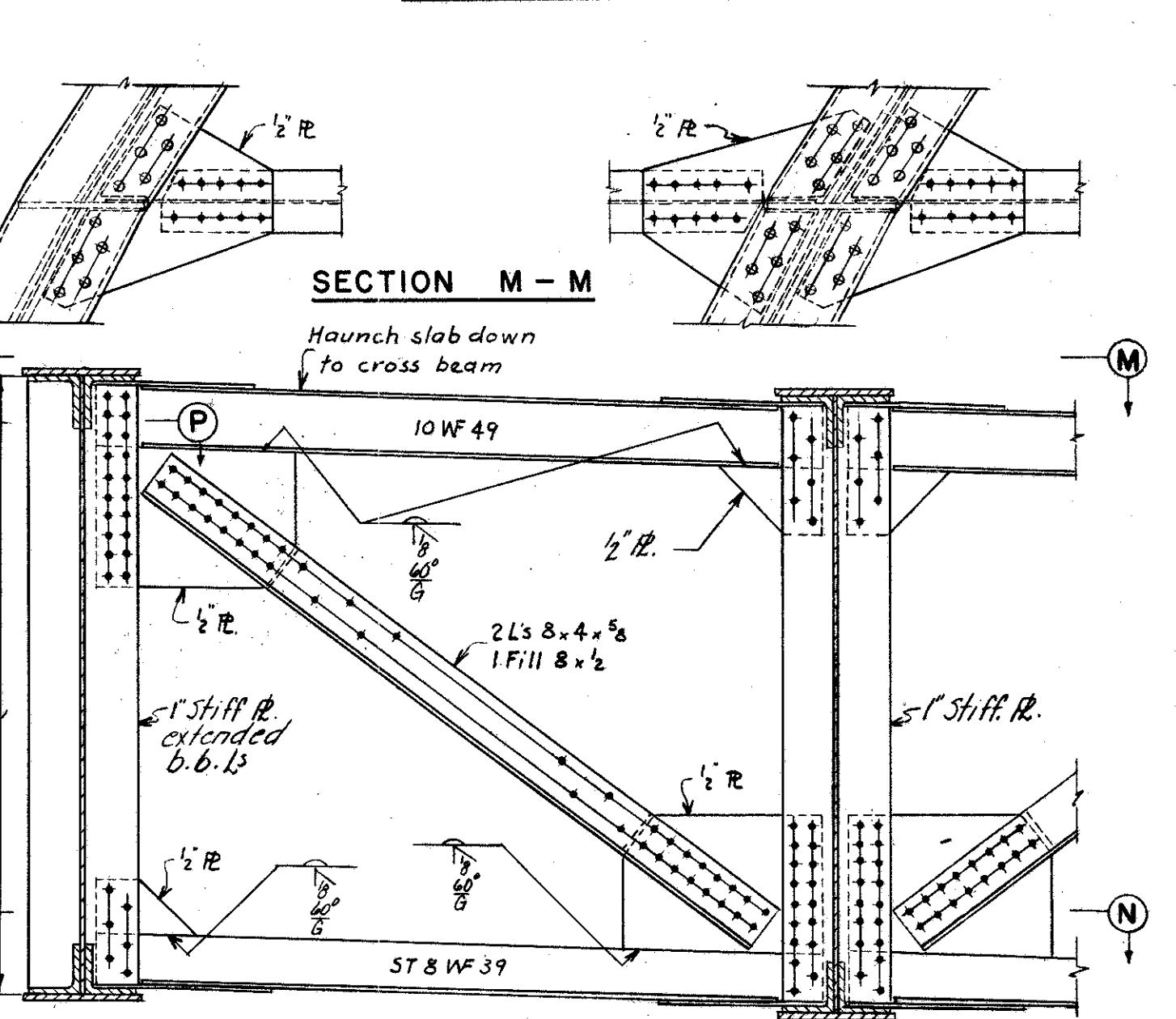
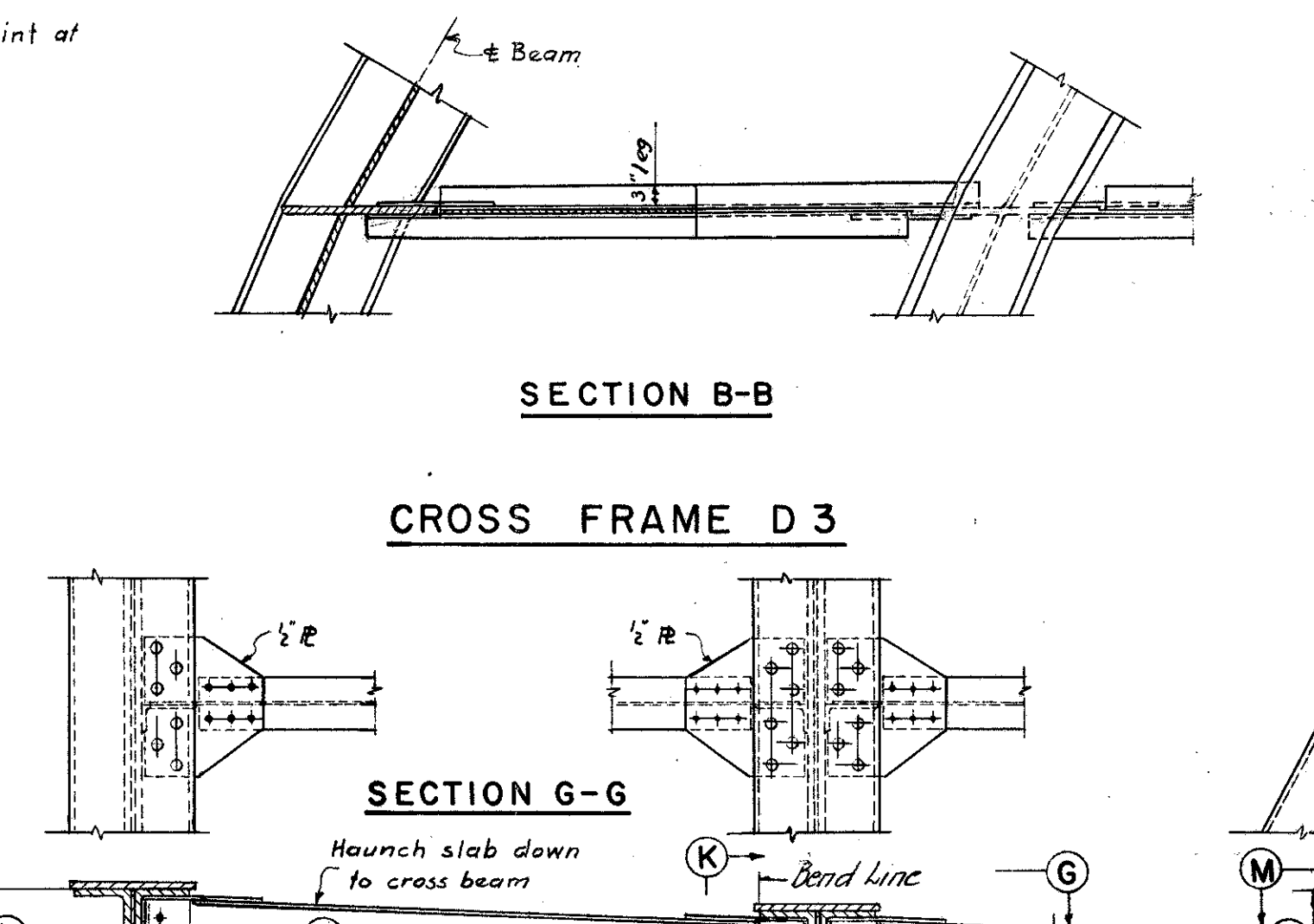
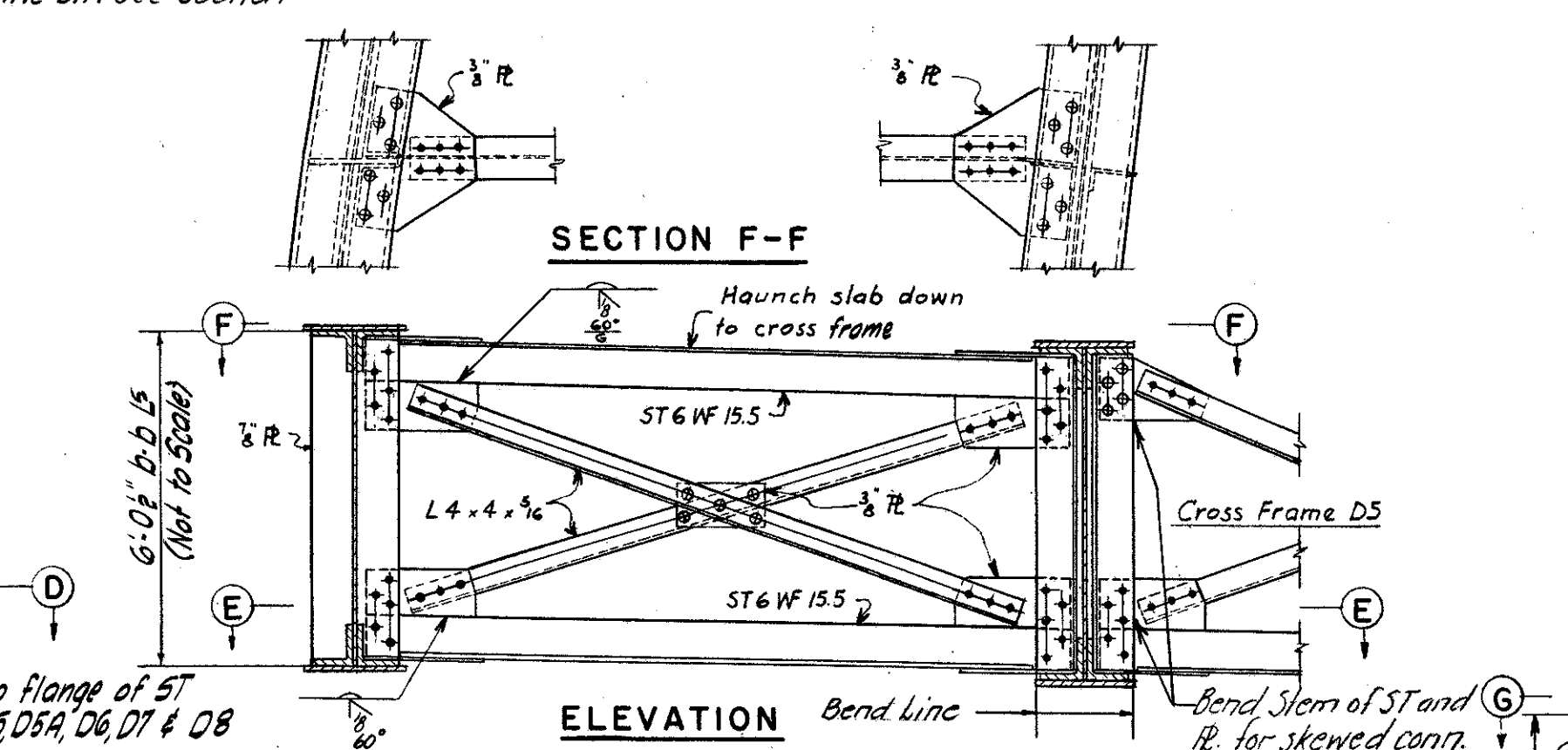
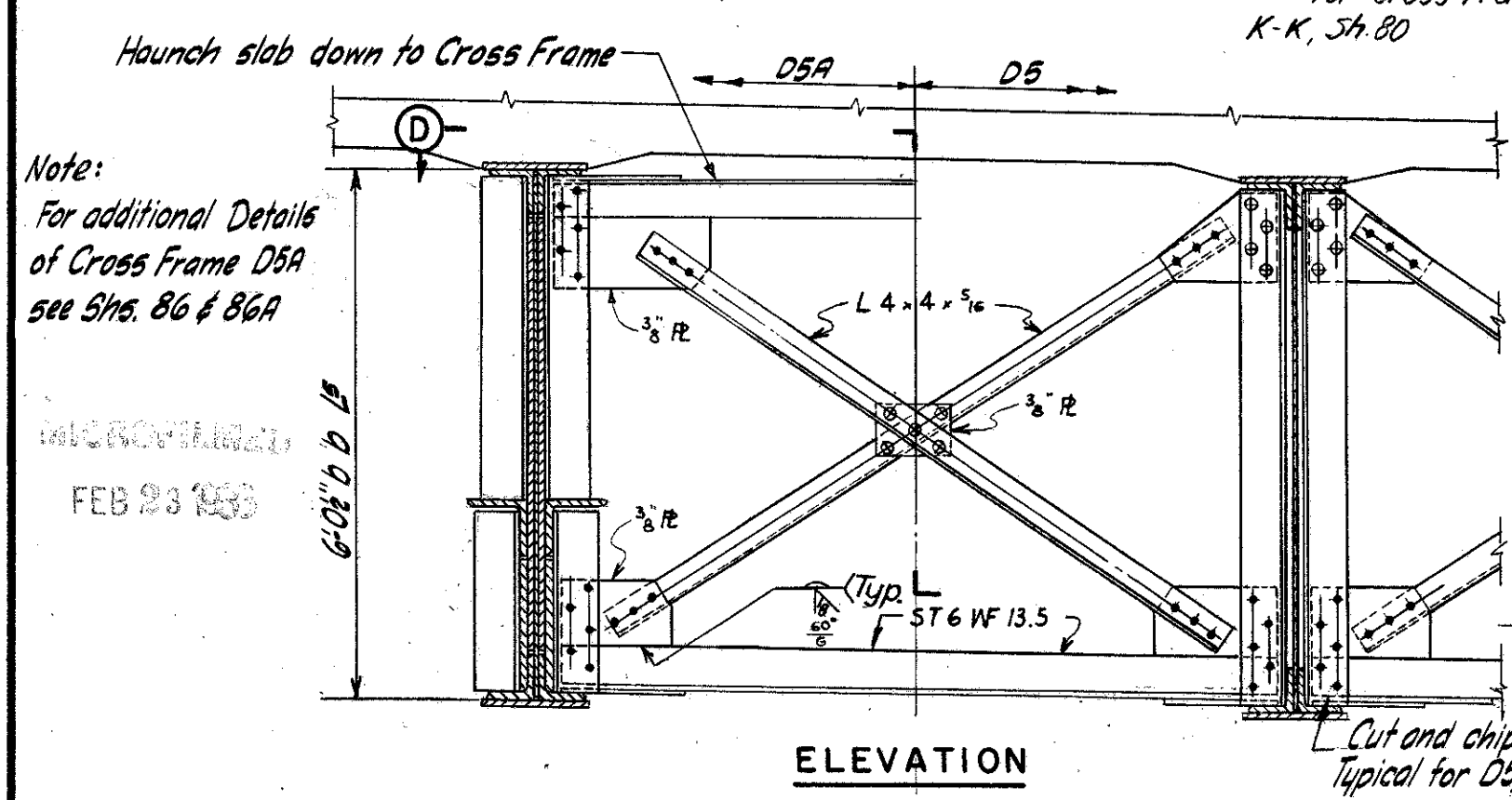
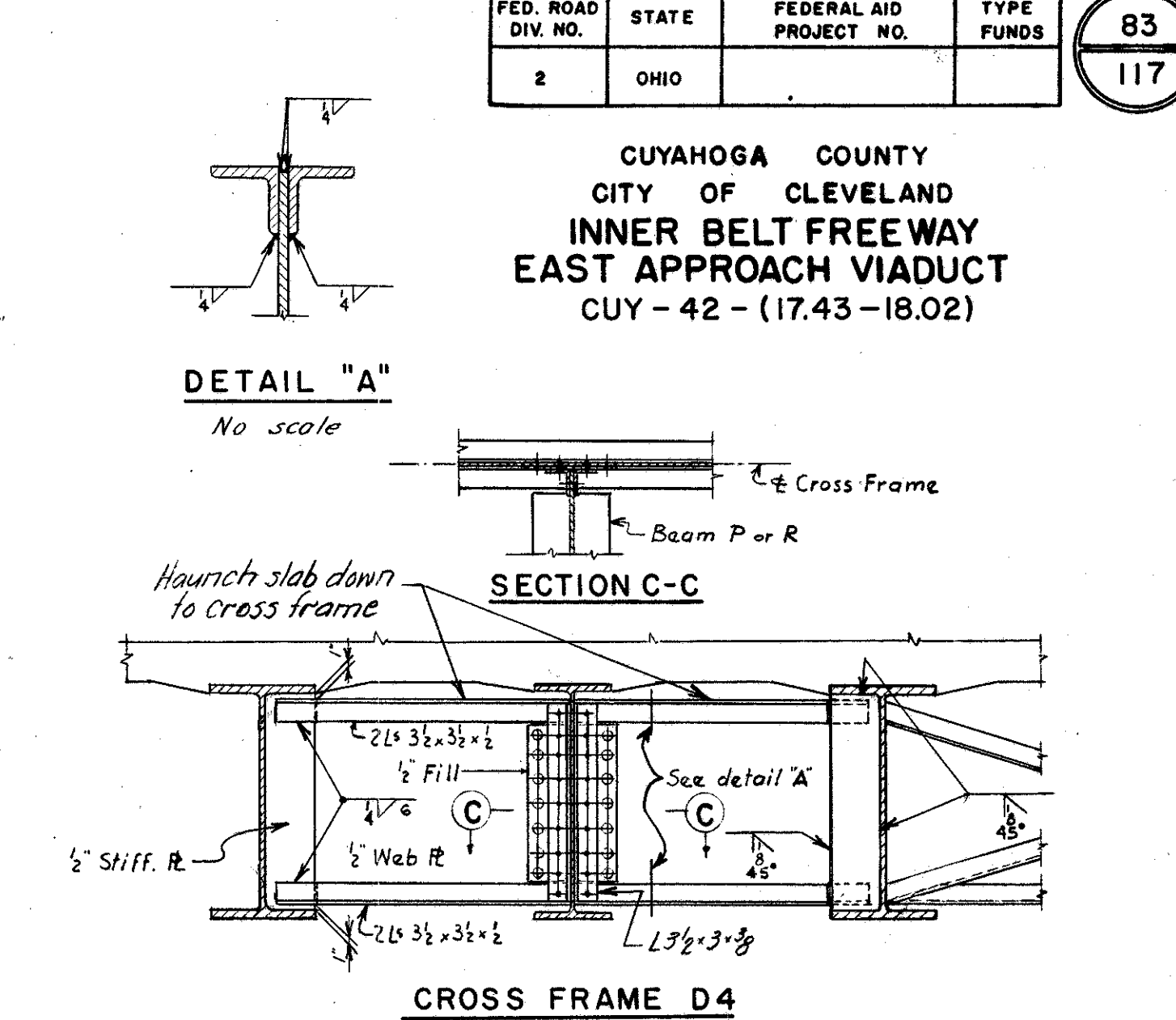
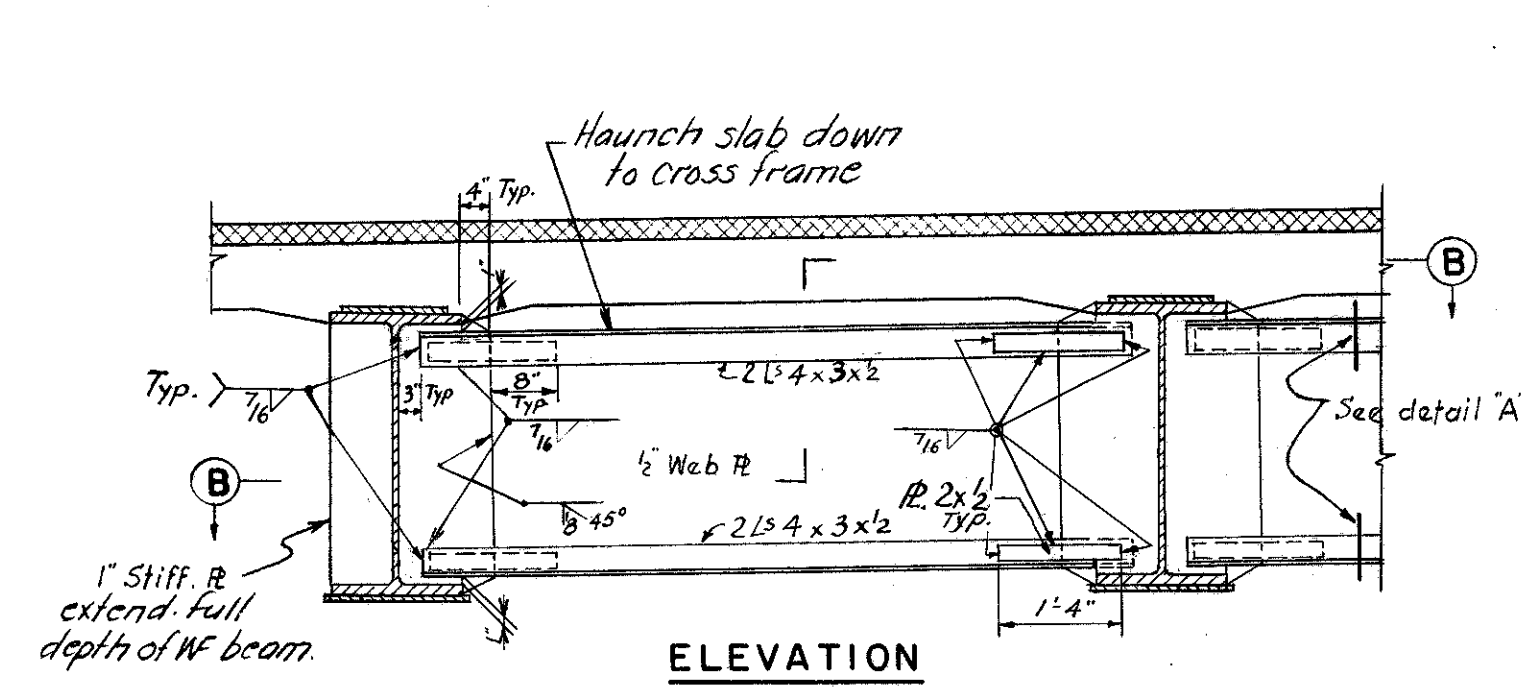
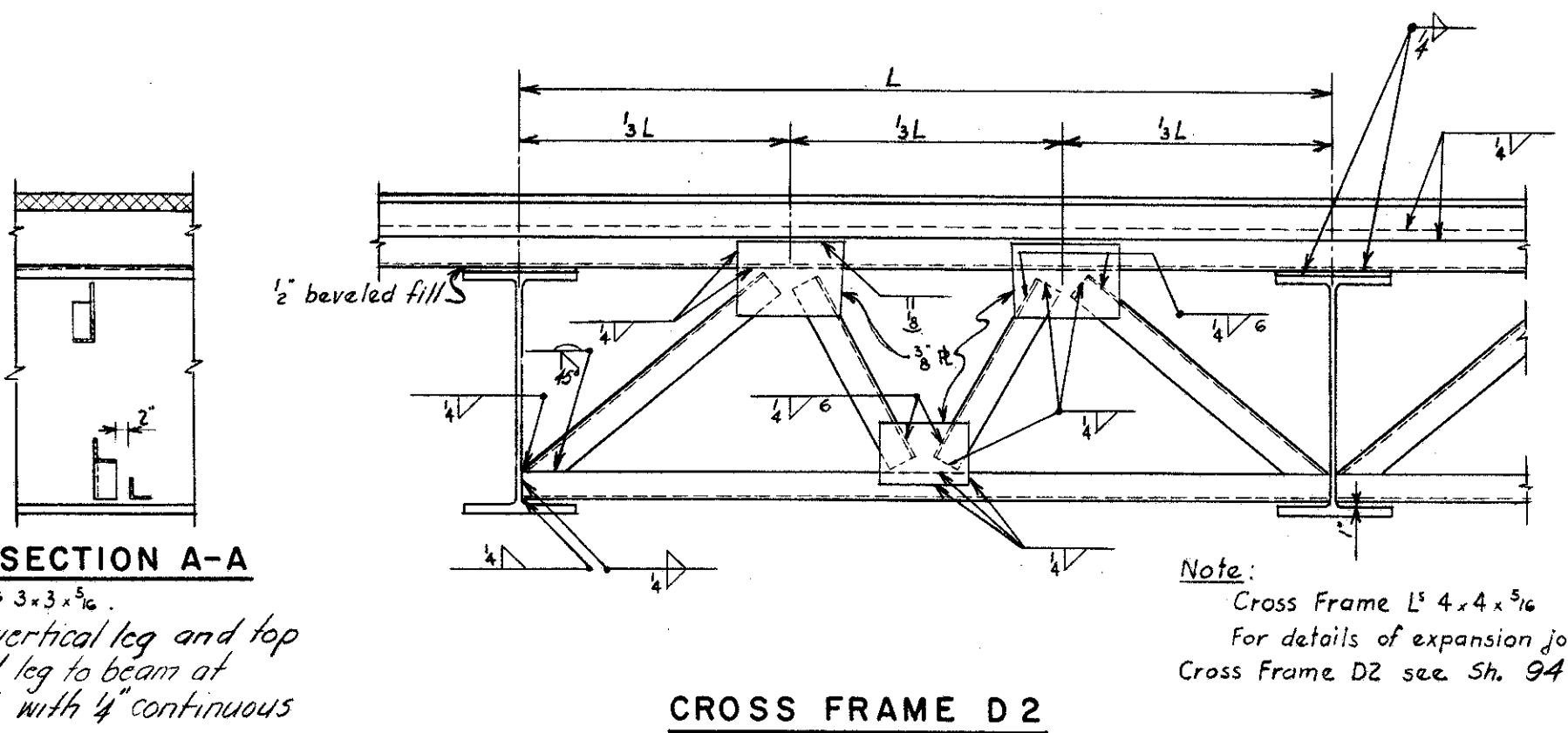
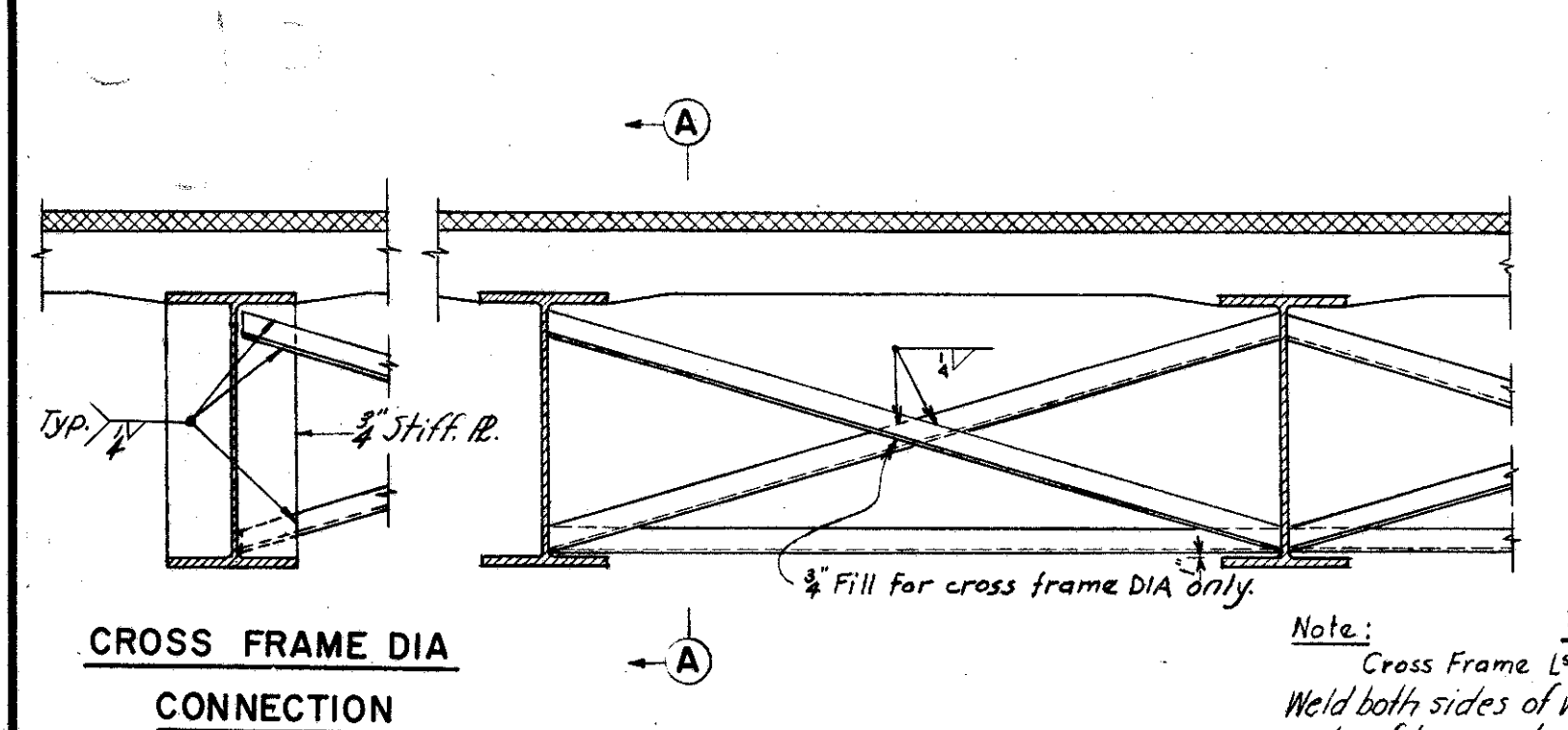
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
GIRDER SPLICES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 2 1/2" = 1'-0"
MADE IN O. DATE 1-10-57
TRCD BY DATE 3-18-57
CKD BY DATE 2-1-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-82

CUYAHOGA COUNTY
CITY OF CLEVELAND
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
CUY-42-(17.43-18.02)



SPLICE WELDING PROCEDURE

1. Butt weld the Girder flanges and web to stiff. R. Make one pass in each flange, then in the web; repeat until welds are completed.
2. Rivet the top and bottom cover plates after weld material has been ground smooth.
3. At bend points cover plates shall be rounded to a radius not less than 1'-0".
4. Cover plates may be cut from a single wide plate, or fabricated by butt welding in shop with cover plate splice to be a minimum of 2'-0" from bend point.
5. Care shall be exercised in the welding procedure in order to keep any distortion of main girder material to a minimum and insure adequate strength of the joint and weld material.

NOTES:
 All rivets 6/8"
 All cross frame material, gusset plates and connection plates to be Structural Carbon Steel
 For location of diaphragms see Framing Plans Shs. 70, 71, 72 and 73
 All cross frames and laterals shall be fully riveted prior to pouring of slab.

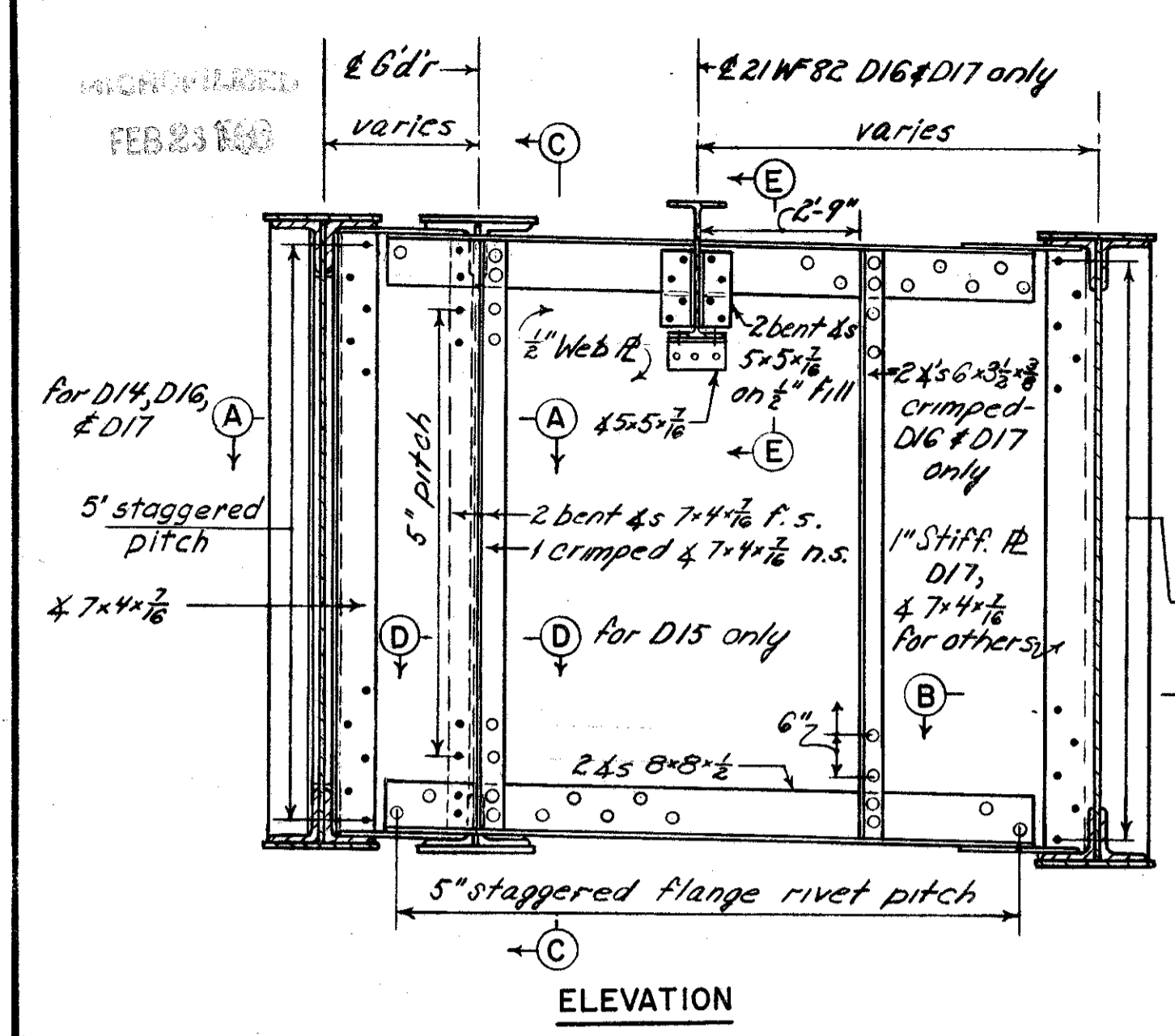
U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-17.50
CROSS FRAMES

CLEVELAND CUYAHOGA COUNTY OHIO

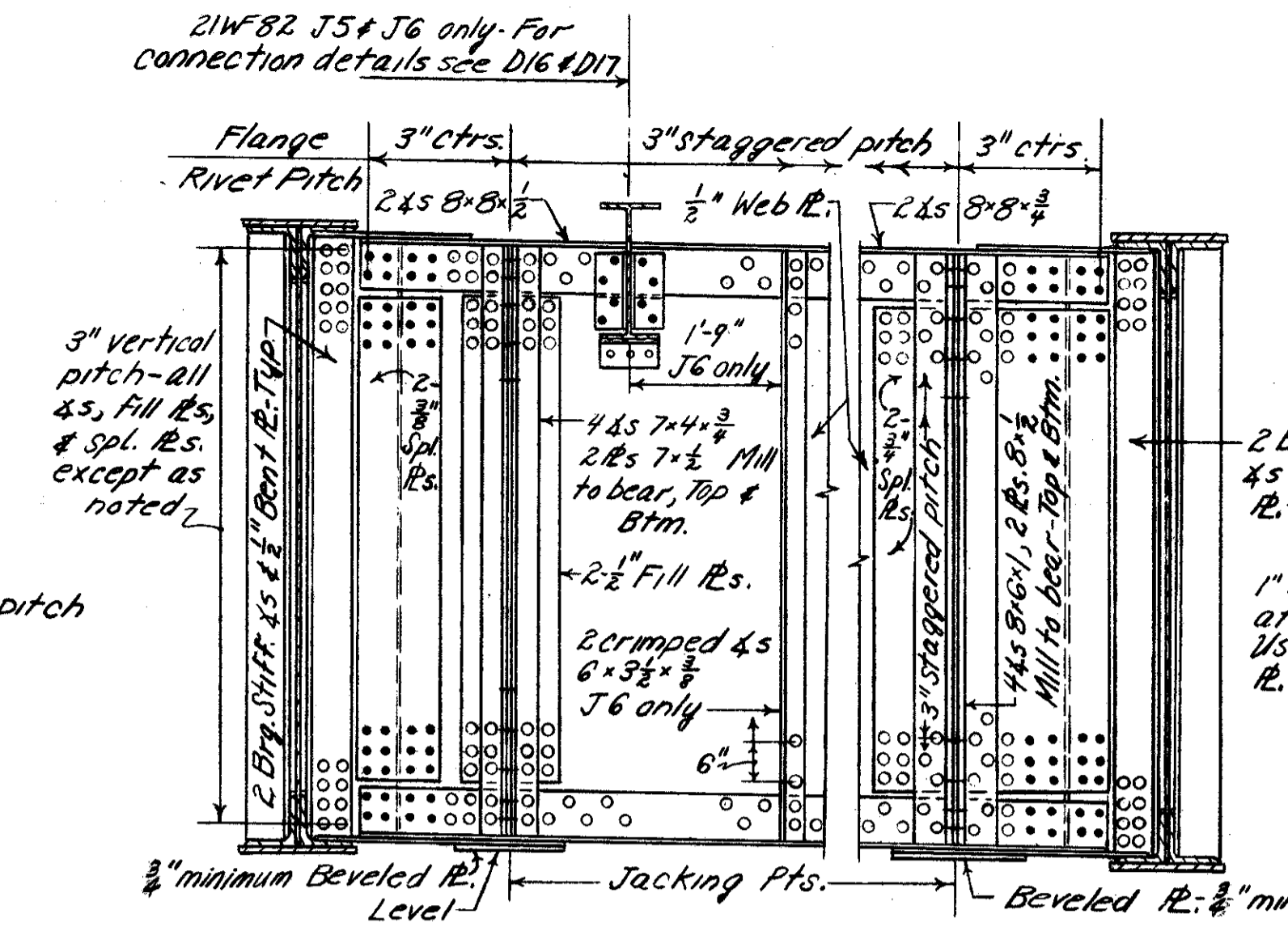
SCALE 1/2"=1'-0"
 MADE J.A.F. DATE 1-18-57
 TRCO H.G. DATE 2-10-57
 CRD B.W.R.L. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) SHEET-83

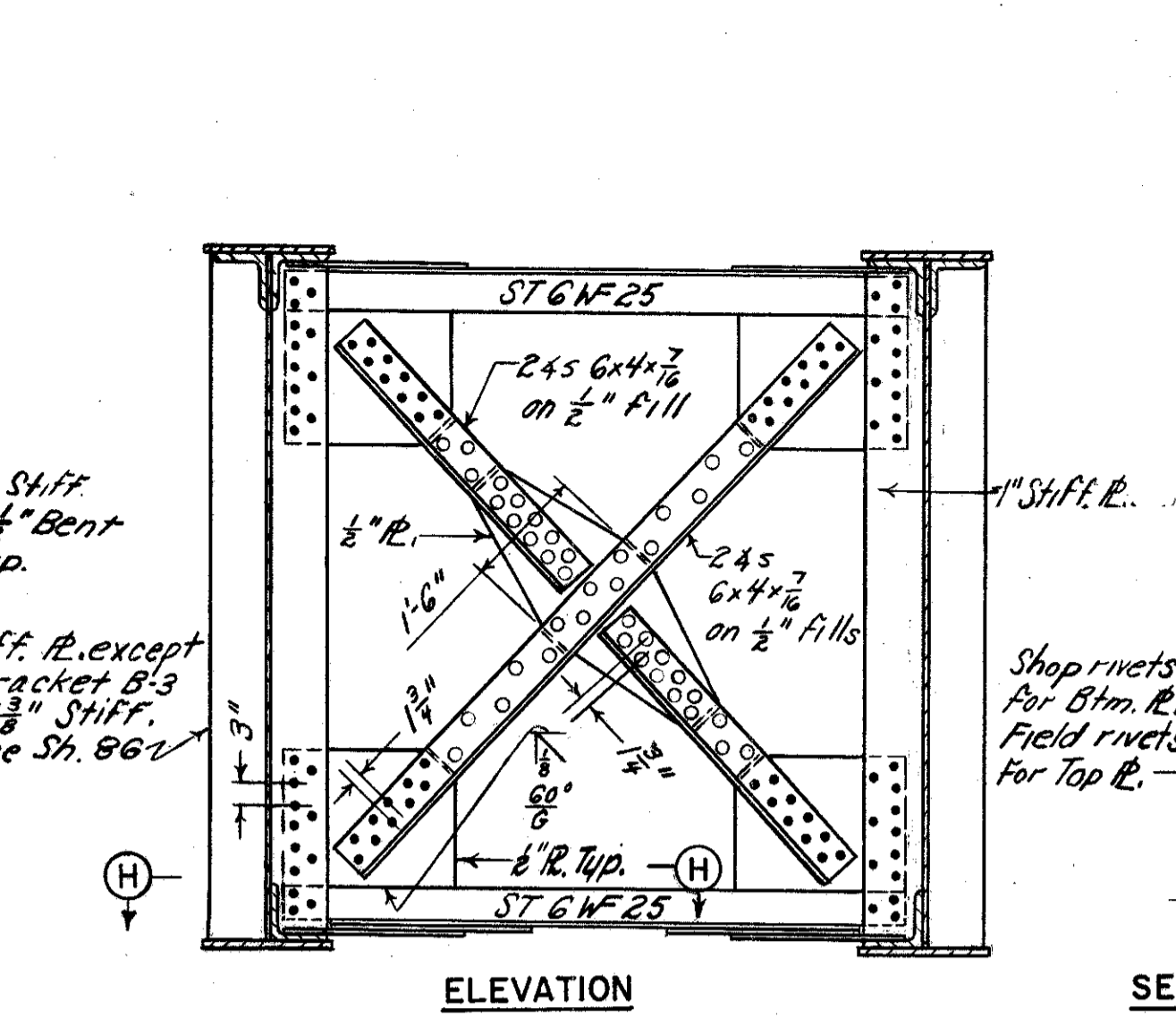
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)



ELEVATION

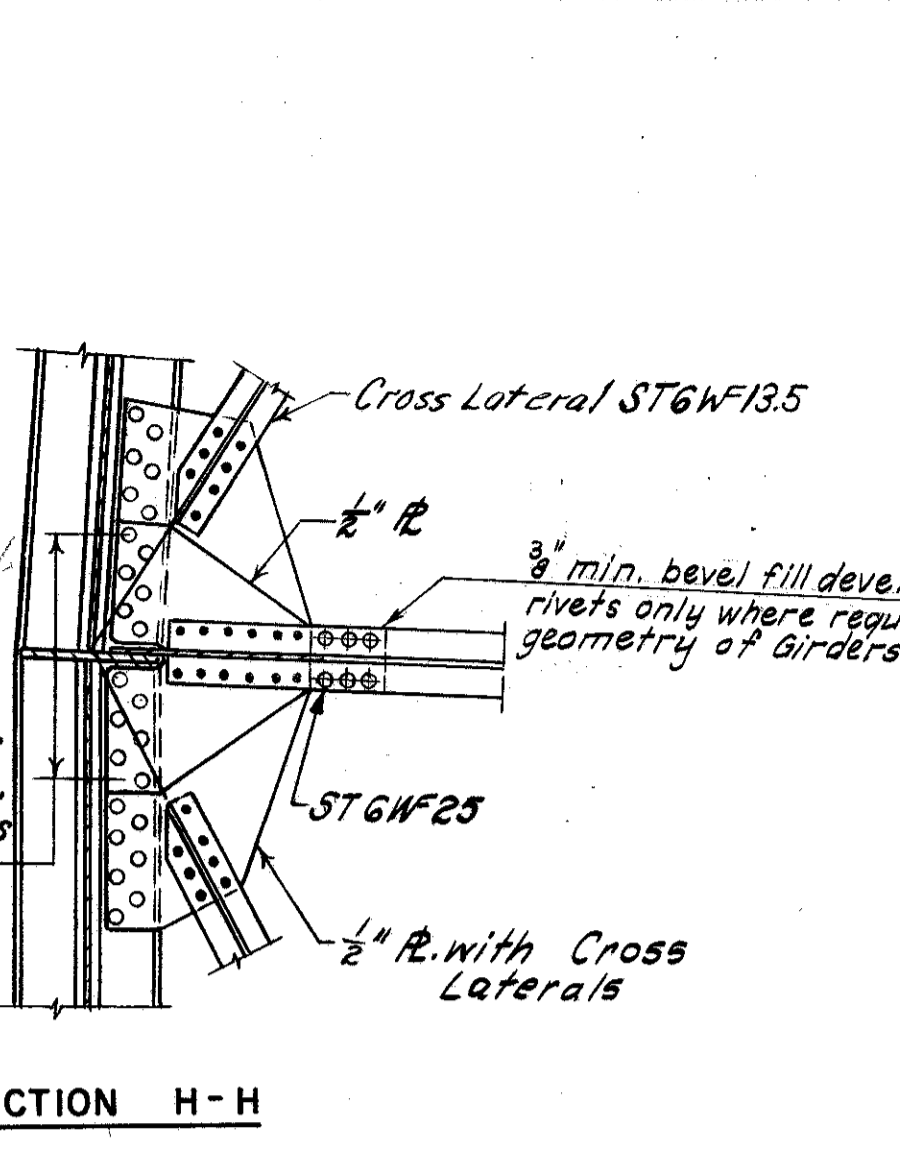


PART ELEVATION J4, J5 & J6
Other Part Similar.

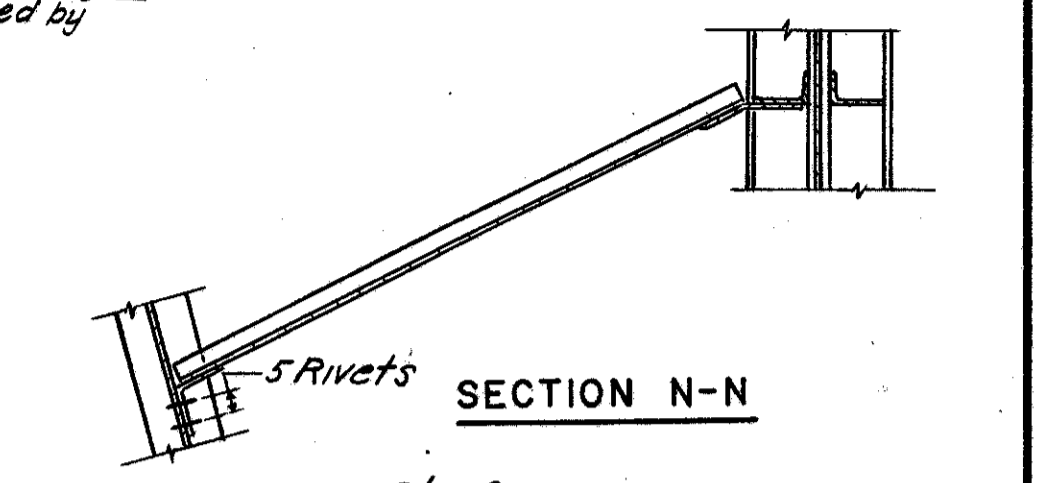


ELEVATION

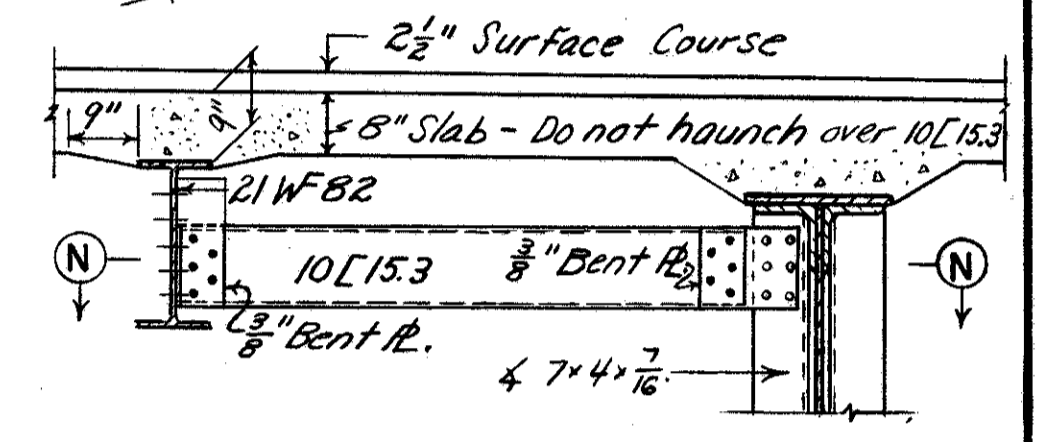
CROSS FRAME D21



SECTION H-H

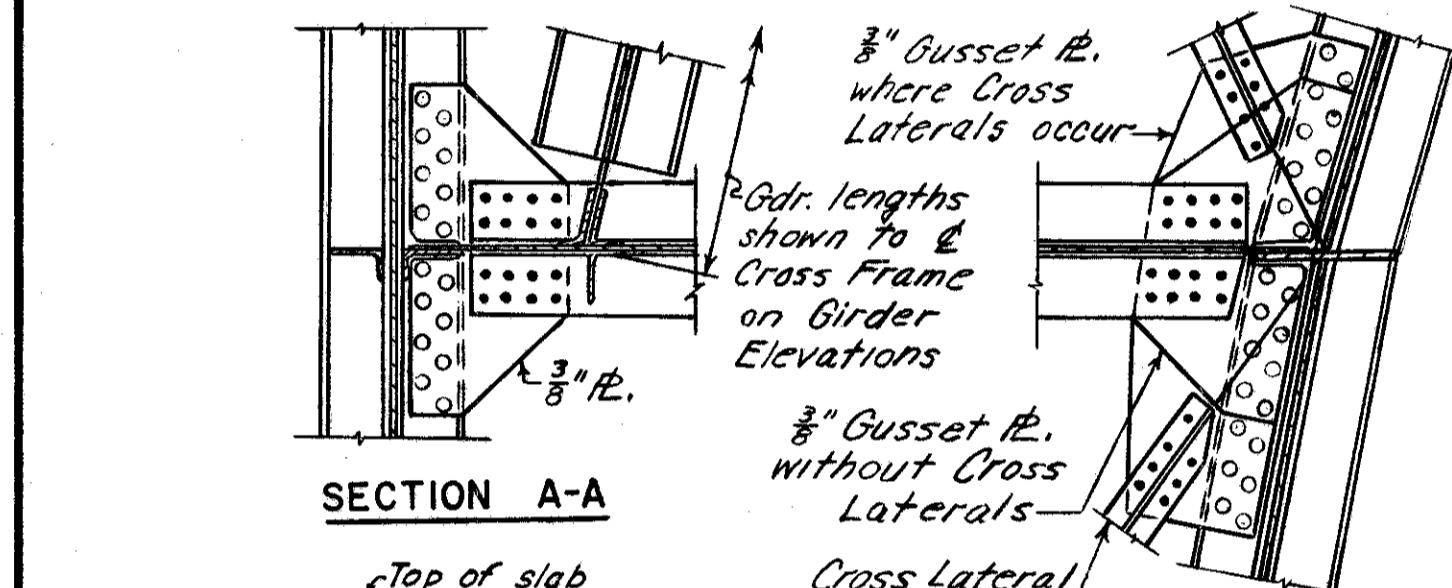


SECTION N-N



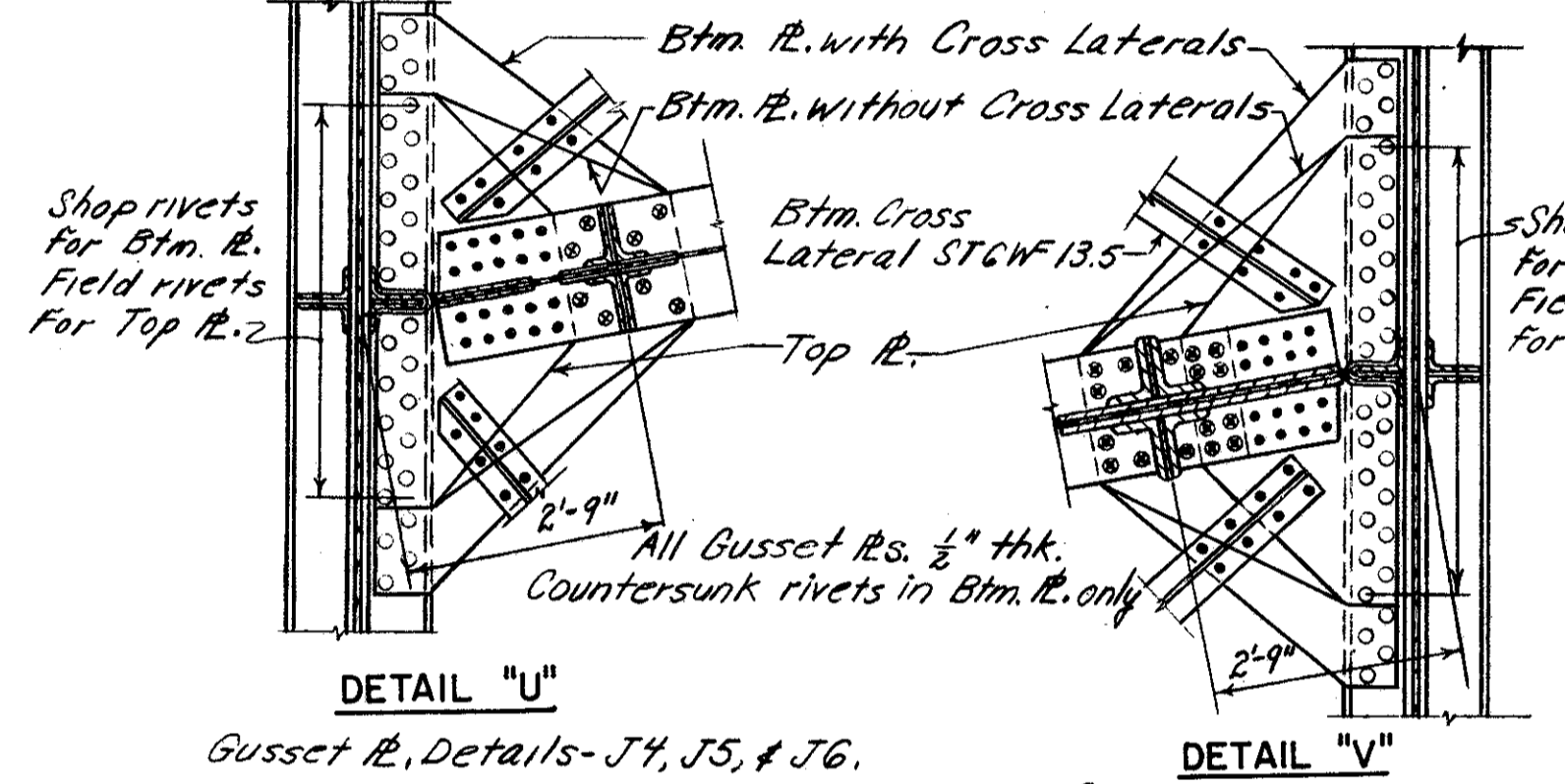
ELEVATION

CROSS FRAME D27



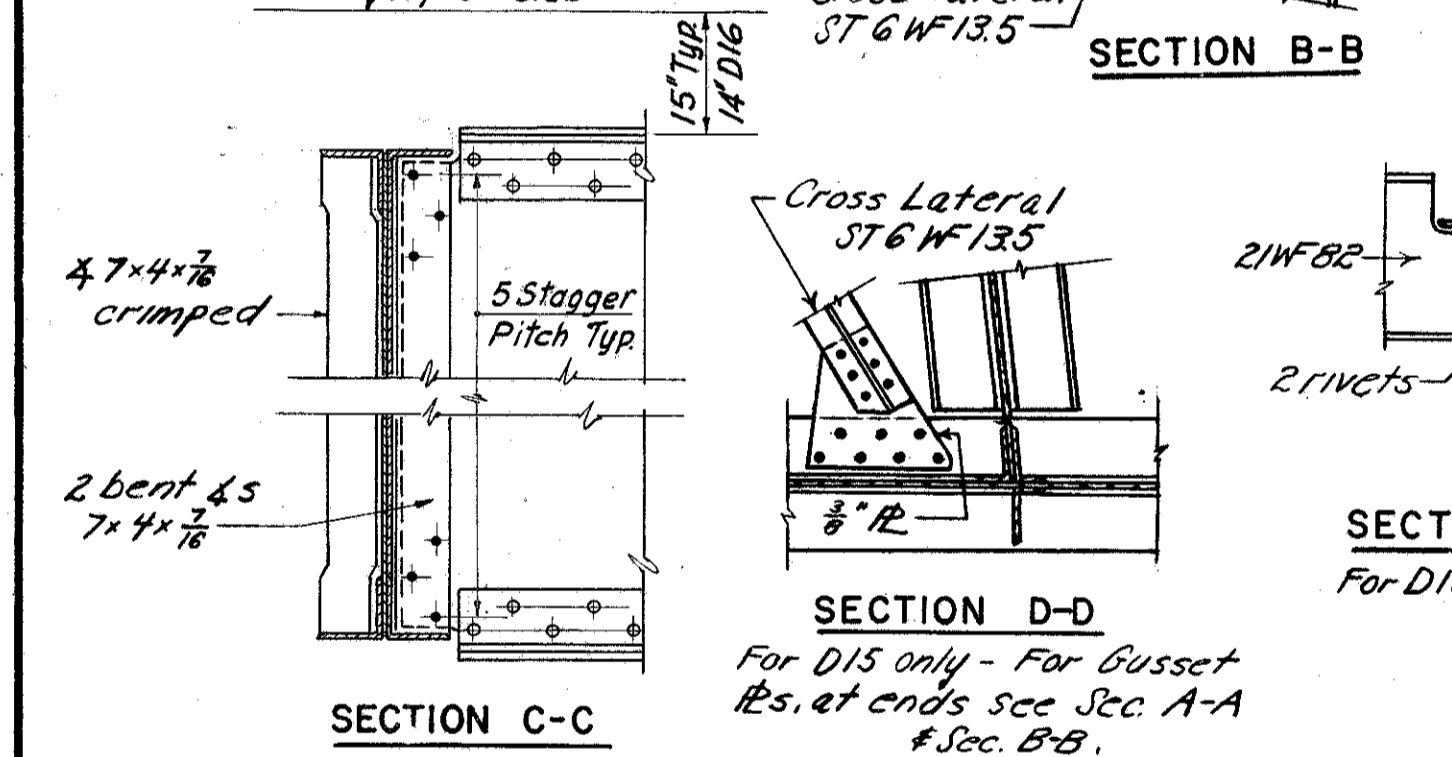
SECTION A-A

SECTION B-B



DETAIL "U"

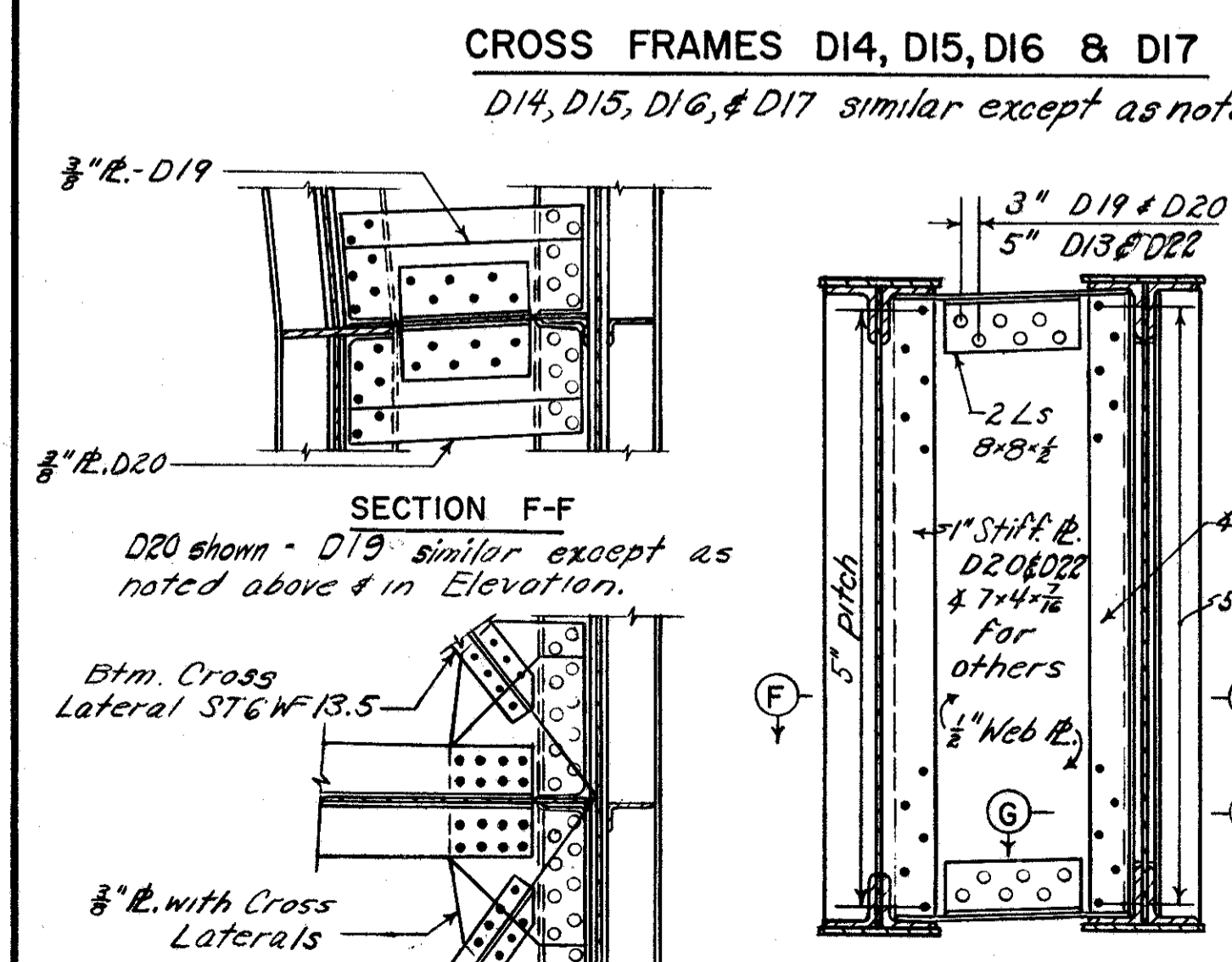
DETAIL "V"



SECTION C-C

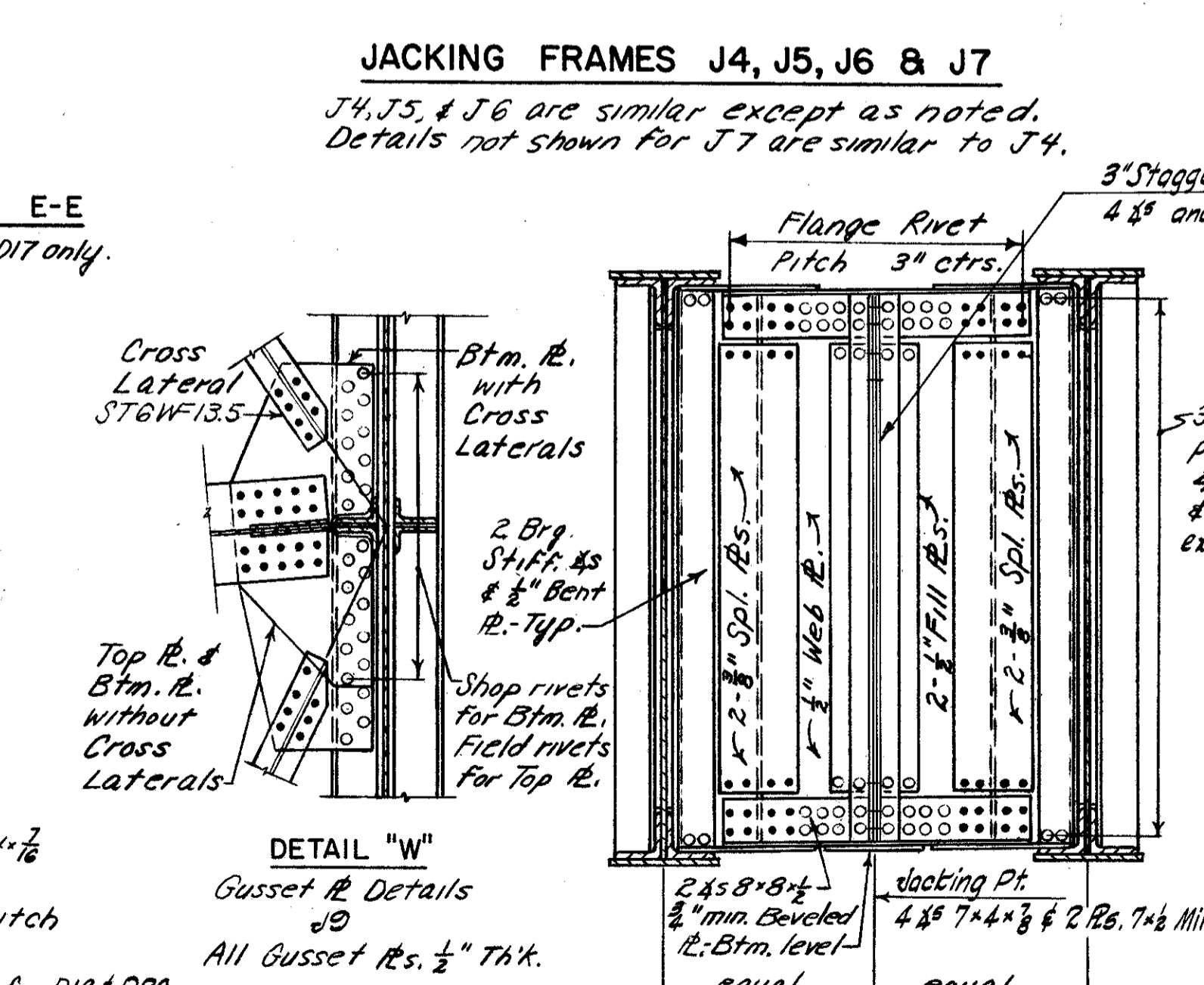
SECTION D-D

SECTION E-E



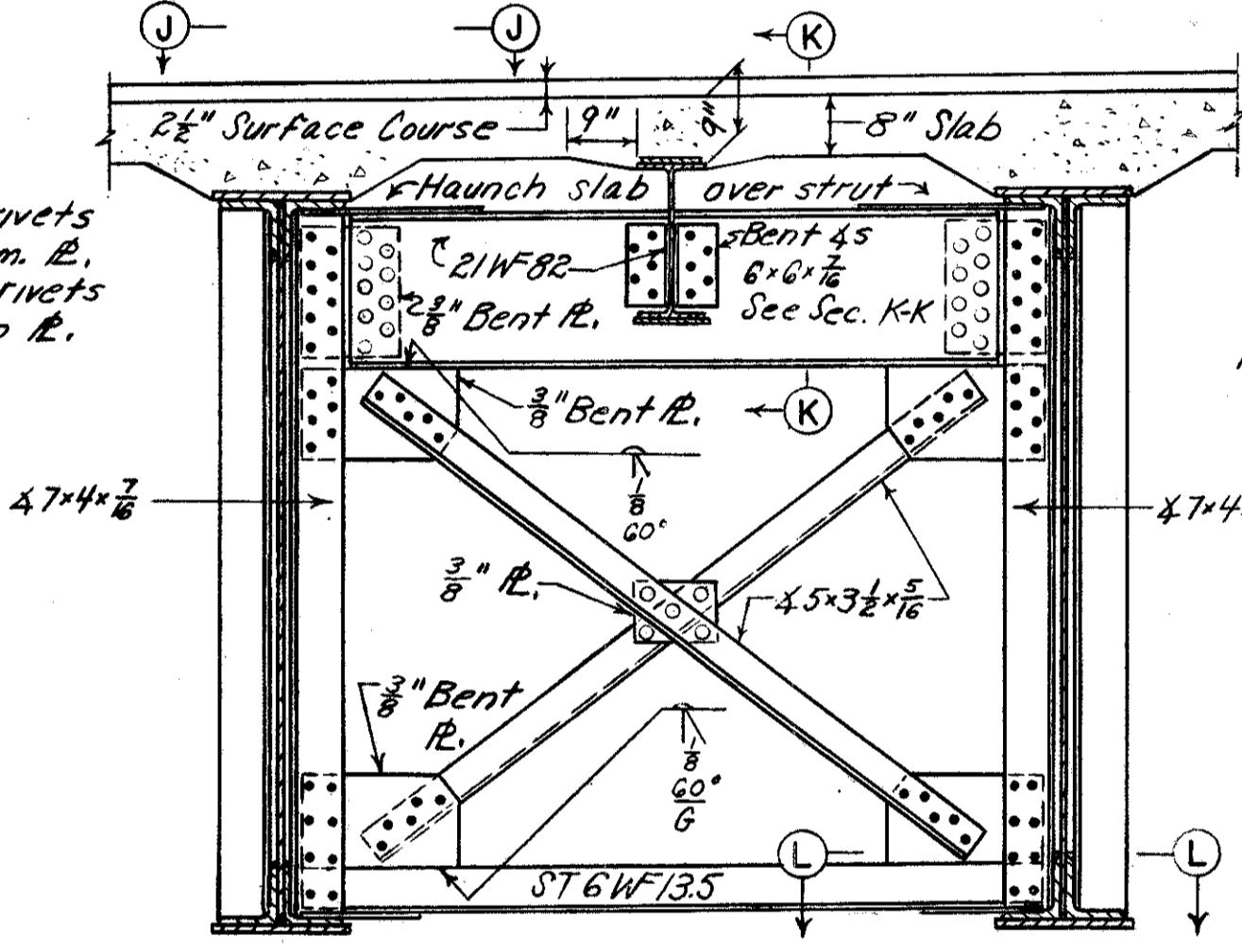
SECTION F-F

SECTION G-G



ELEVATION

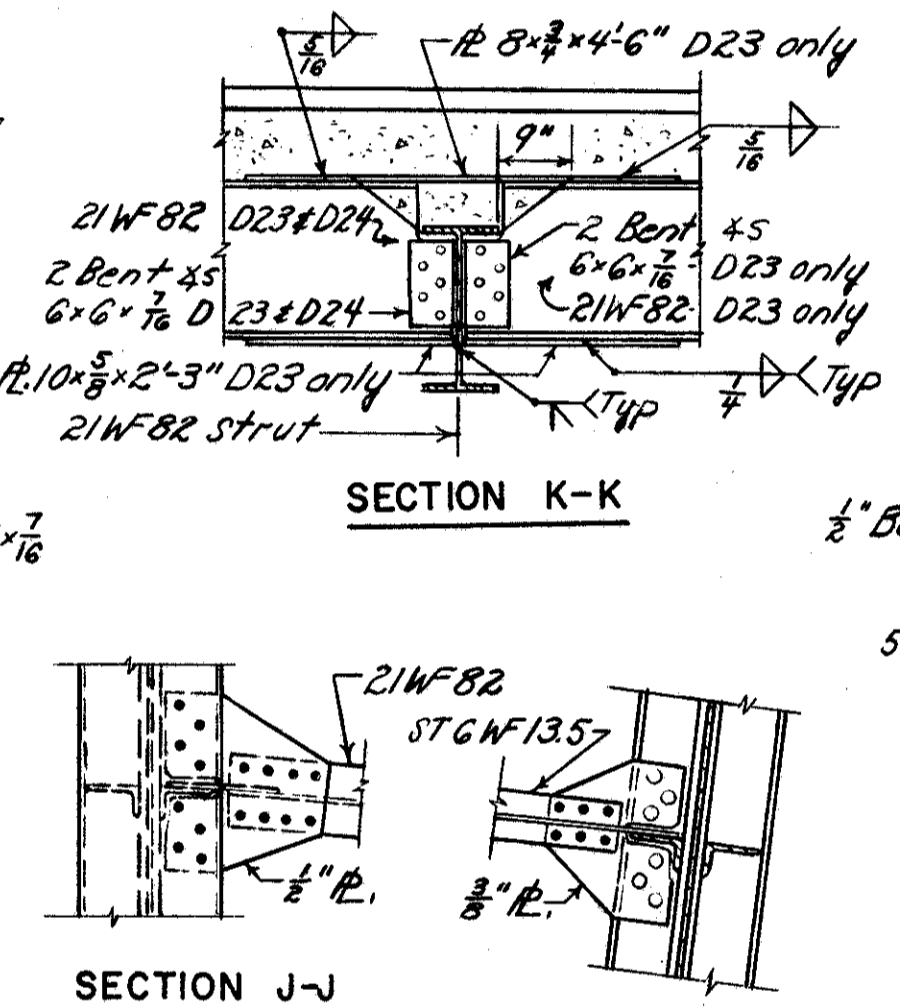
JACKING FRAME J9



ELEVATION

CROSS FRAMES D23 & D24

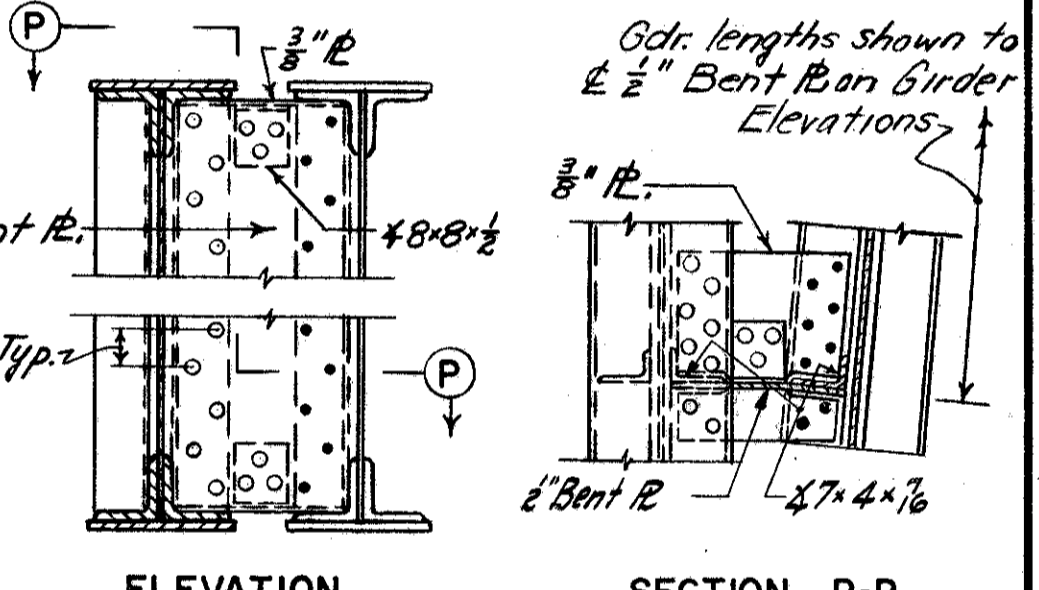
D23 & D24 are similar except as noted.



SECTION J-J

SECTION K-K

SECTION L-L



ELEVATION

SECTION P-P

CROSS FRAME D18

NOTES:
All Rivets 3/4"
All Cross Frames & Jacking Frames to be Structural Carbon Steel.
Connection Ribs to be bent as required for skew & grade of members.
Gusset Ribs to be stiffened by 3x3x3/8 angles where unsupported edges exceed 1'-10 1/2".
For 3/4" Ribs, 2'-6" for 1/2" Ribs. (as shown for D23)
Gusset Ribs at tops of frames are same as btm. Ribs without Cross laterals except as noted.
Concrete slab at all Jacking Frames & Cross Frames (except D27) to be haunched down to top members of frames as shown for D23 & D24.
Top & btm. flange angles for frames are similar. For girder intermediate & bearing stiffener angles & details see Sh. 85.
For modification of Jacking Frame J4 at drainage trough see Sh. 108.
For Jacking Frame J8, see Sh. 86A.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
CROSS FRAME DETAILS-UNIT I
CLEVELAND CUYAHOGA COUNTY OHIO

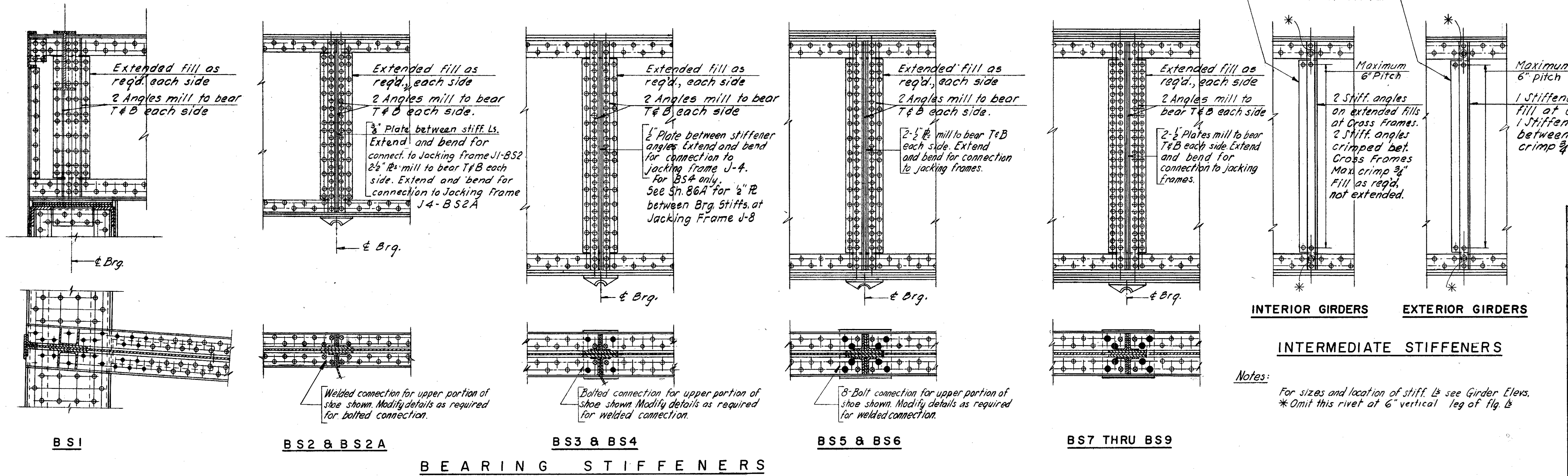
SCALE 1/2" = 1'-0"
MADE 2/27 DATE 1-14-57
TRCD 2/16 DATE 2-18-57
CKD 2/16 DATE 2-2-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-84

UNRECORDED
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

85
117

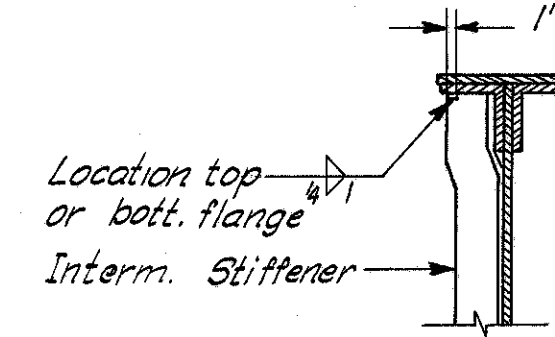
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



Maximum 6" pitch
2 Stiff. angles on extended fills at Cross Frames.
2 Stiff. angles crimped bet. Cross Frames Max. crimp 3/4".
Fill as reqd., not extended.

TABLE OF BEARING STIFFENERS											
GIRDER	UNIT 1						RAMPE 1				
	Box Girder	Pier 1B	Pier 2B	Pier 3B	Pier 4B	Pier 2E2	Pier 2E1	Pier 3E1	Pier 4E1	Pier Abut	E1
Y		BS3	BS7				BS2A	BS2	BS2	BS2	BS2
X			BS5				BS2A	BS2	BS2	BS2	BS2
W		BS3	BS5				BS2A	BS2	BS2	BS2	BS2
V			BS8				BS2A	BS2	BS2	BS2	BS2
R	BS1	BS4	BS7	BS9	BS4						
Q	BS1	BS4	BS6	BS7	BS4						
P	BS1	BS4	BS6	BS7	BS4						
O	BS1	BS4	BS6	BS7	BS4						
N	BS1	BS4	BS6	BS7	BS4						
M	BS1	BS4	BS6	BS7	BS4						
L	BS1	BS4	BS6	BS8	BS4						
K	BS1	BS4	BS7	BS8	BS4						
J	BS1	BS4	BS6	BS7	BS4						
H	BS1	BS4	BS6	BS7	BS4						
G	BS1	BS4	BS6	BS7	BS4						
F	BS1	BS4	BS6	BS7	BS4						
E	BS1	BS4	BS6	BS7	BS4						
D	BS1	BS4	BS8	BS8	BS4						
U							BS8	Ramp E2			
T							BS6	Pier Abut.			
S							BS6	2E2 E2			
C								BS5 BS3			
B								BS7 BS3			
A								BS9 BS3			

Note: For sizes of Brq. Stiffs, see Girder Elevs. For modification of BS3 & BS4 @ Jacking Frame JB (Pier 1B) see Sh. B6A

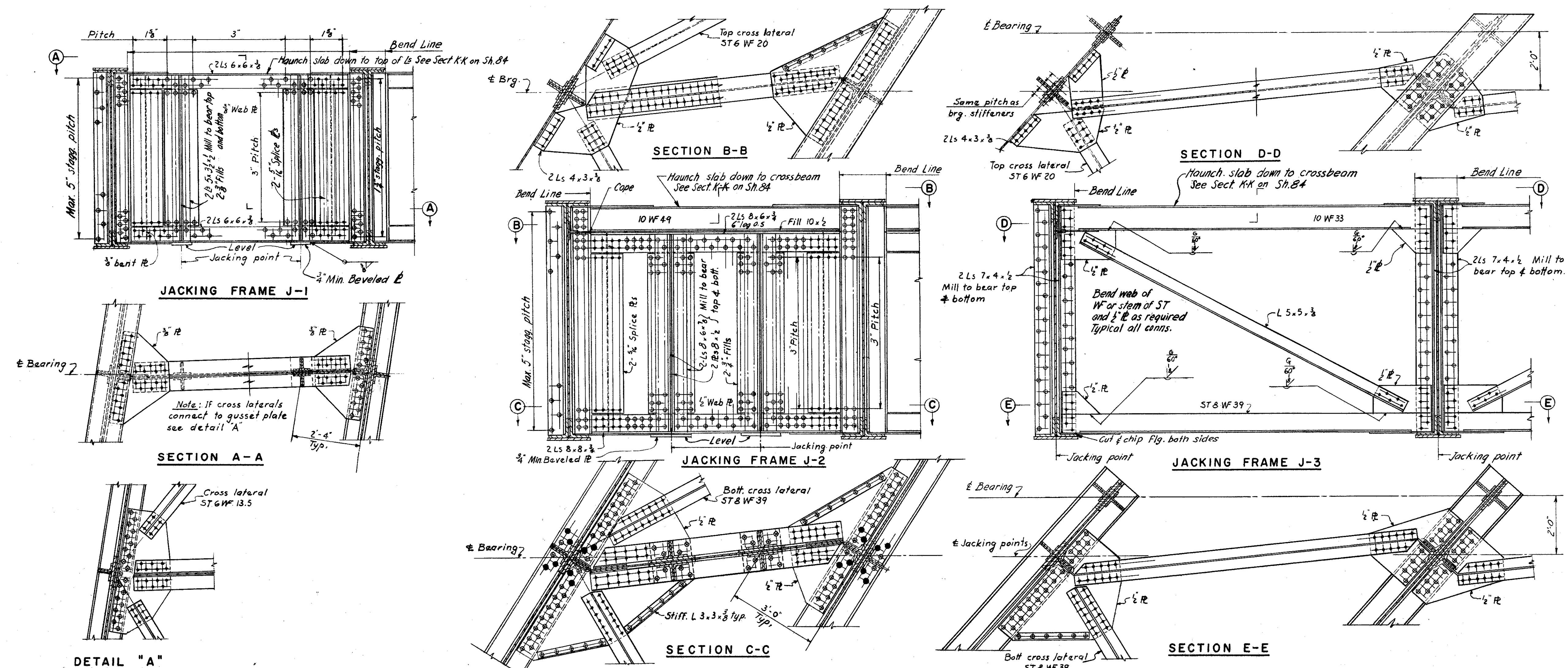


To be used only on fascia girders where intermediate stiffeners are omitted on one side of girder. See Girder Elevs. Shs. 74, 76, 77, 78A & 79 for location of stiff's to be welded to top or bottom flange of girder.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
STIFFENER AND JACKING FRAME
DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2"=1'-0"
MADE JAF DATE 1-21-57
TRCD H.G. DATE 2-12-57
CKD G.W.L. DATE 2-27-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-85

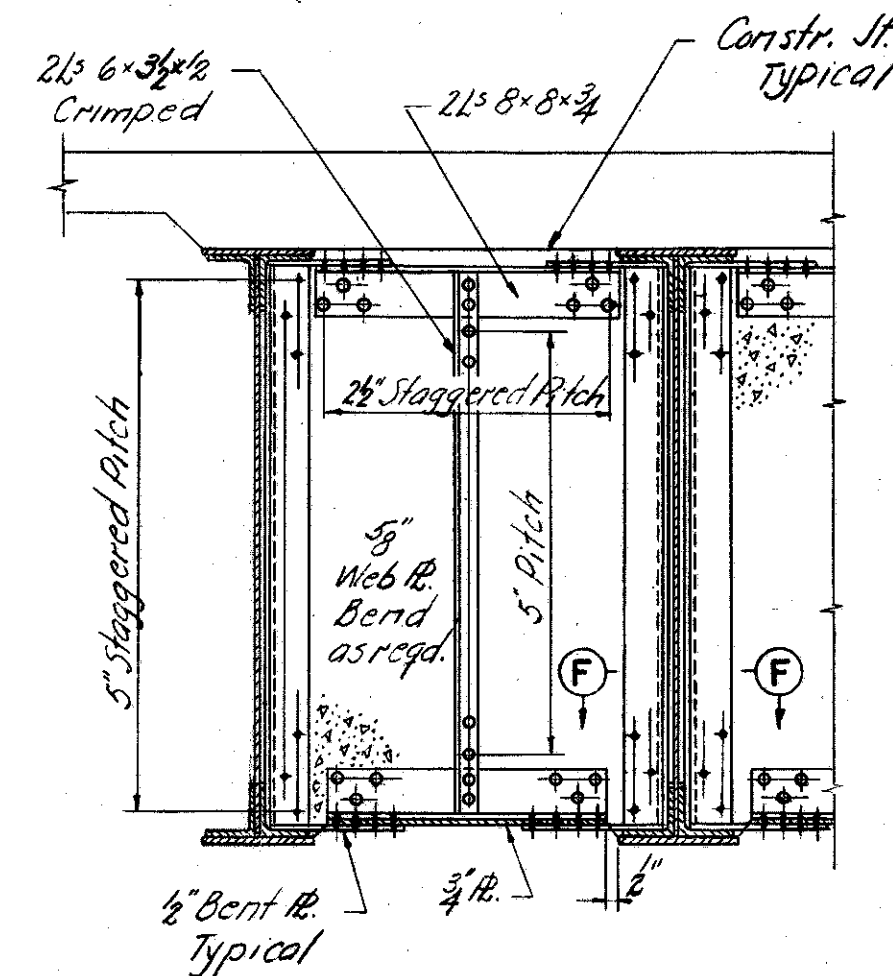
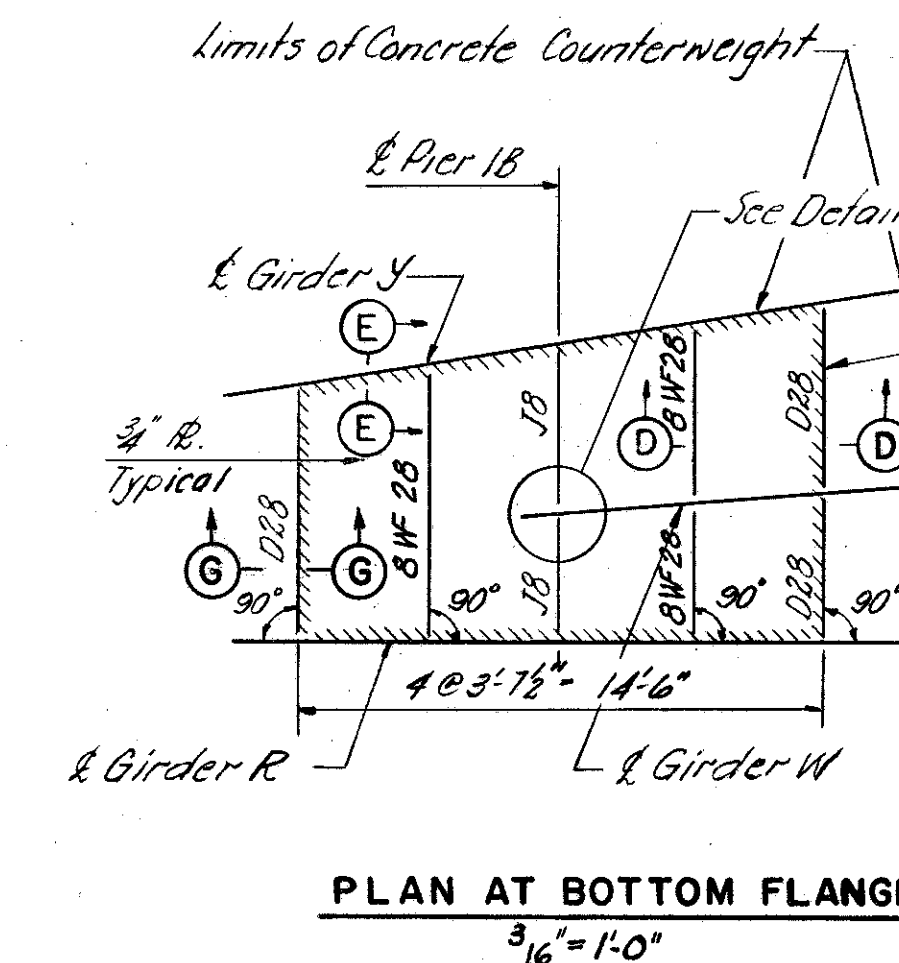
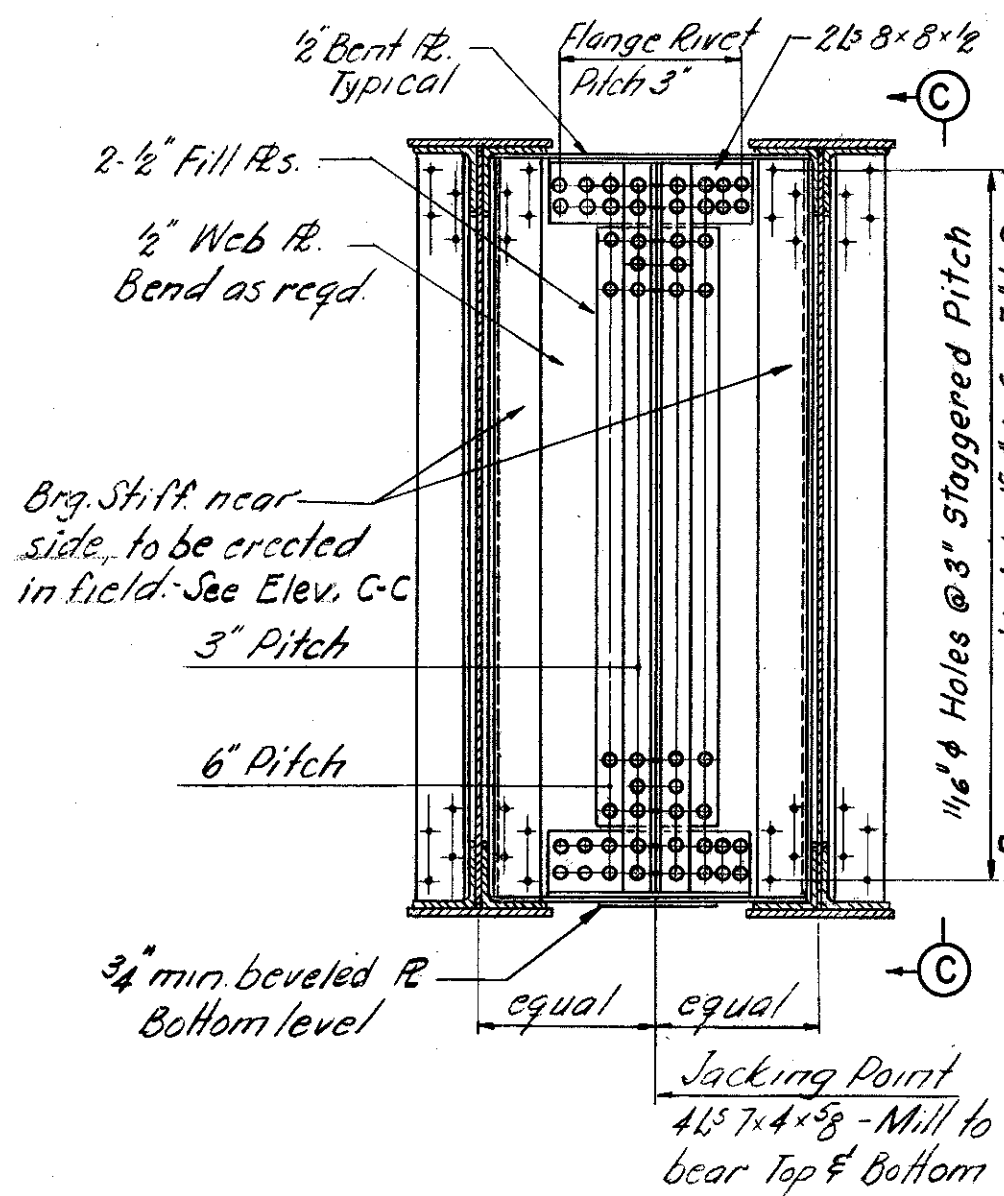
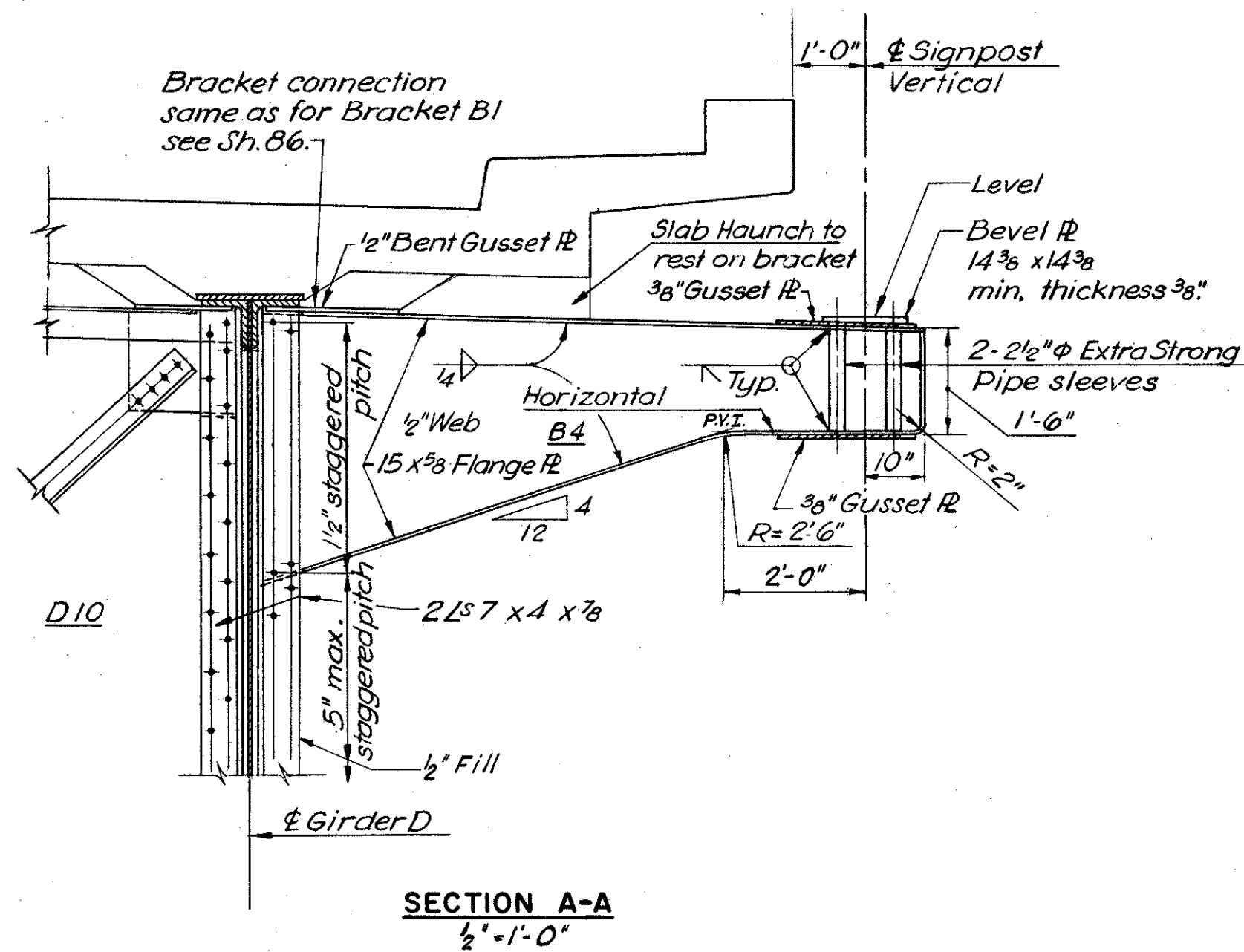
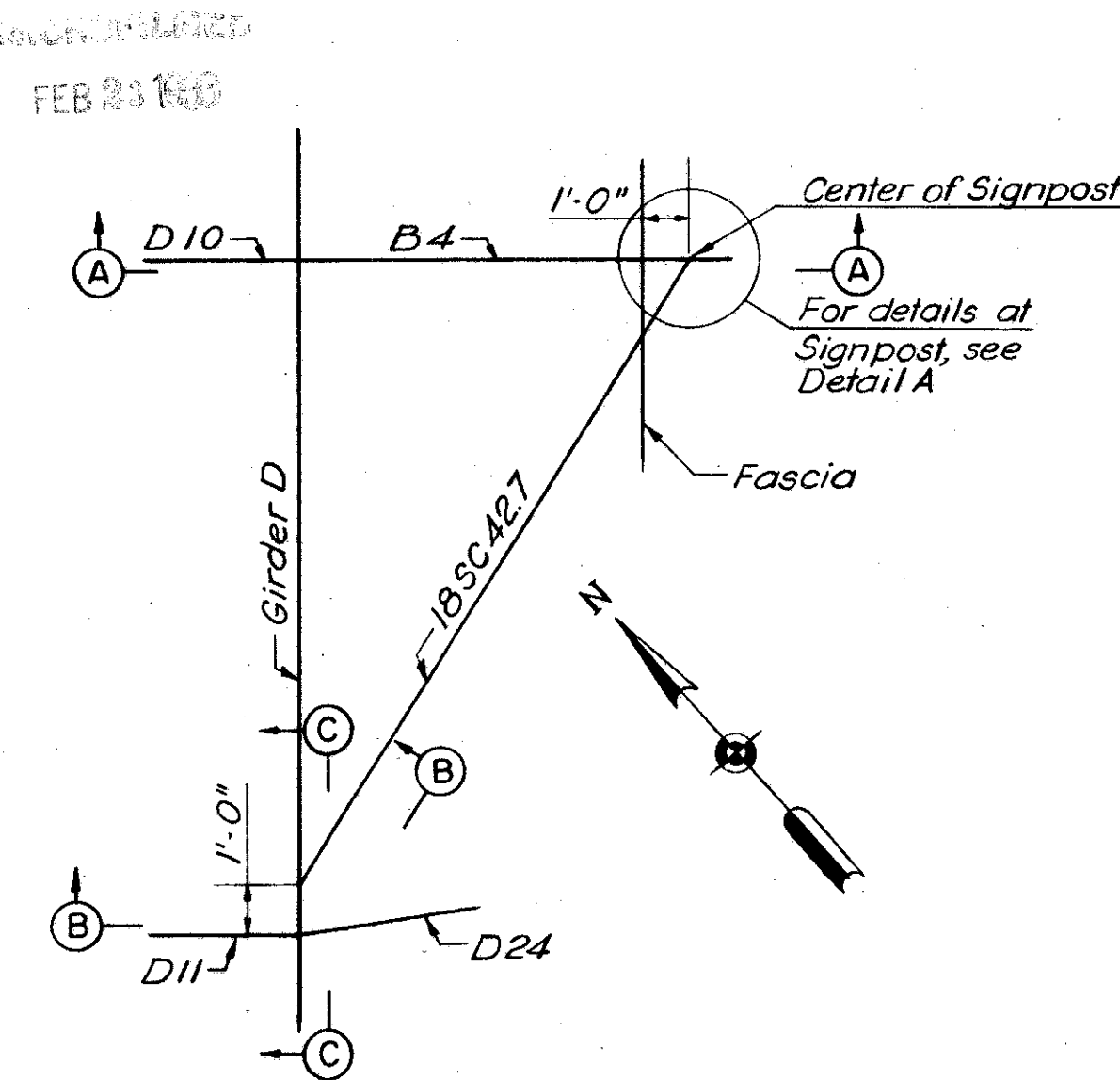


DETAIL "A"

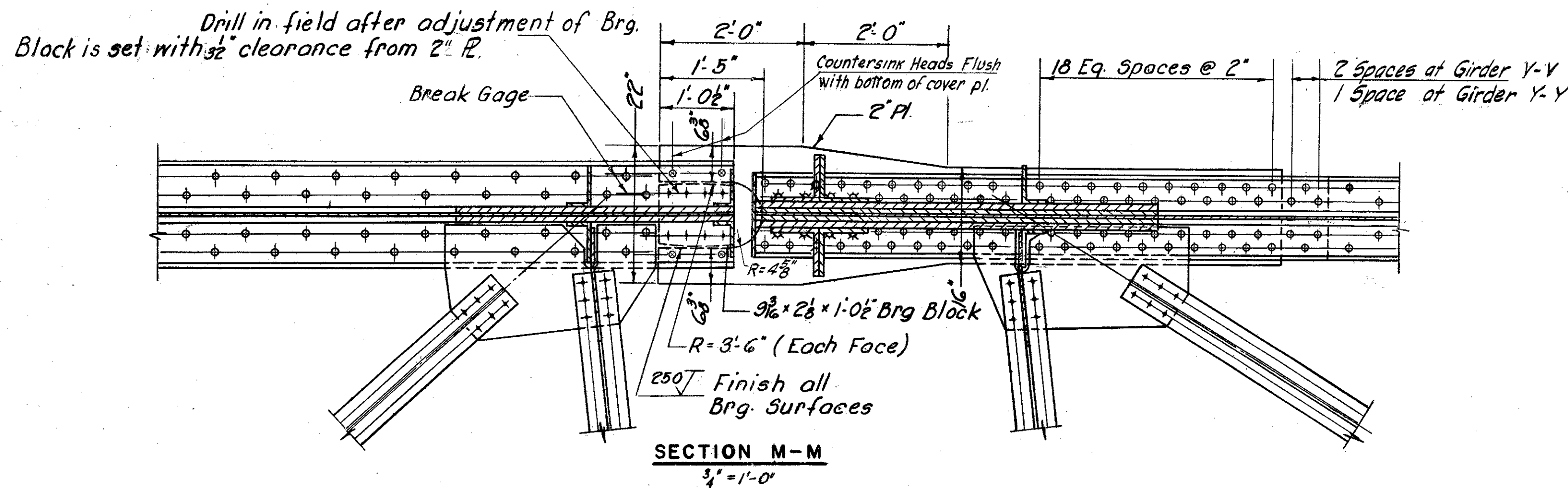
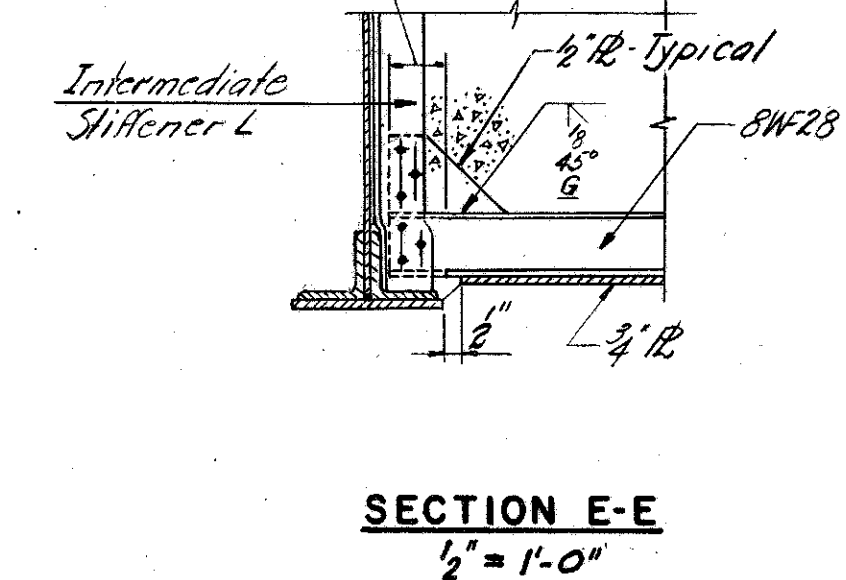
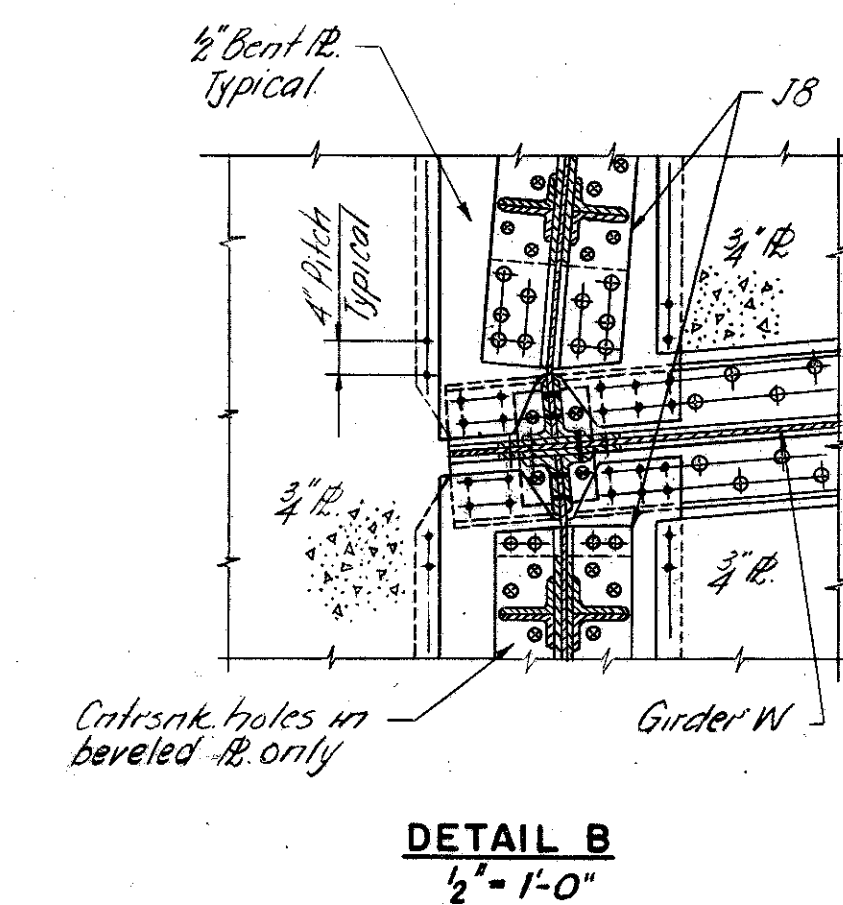
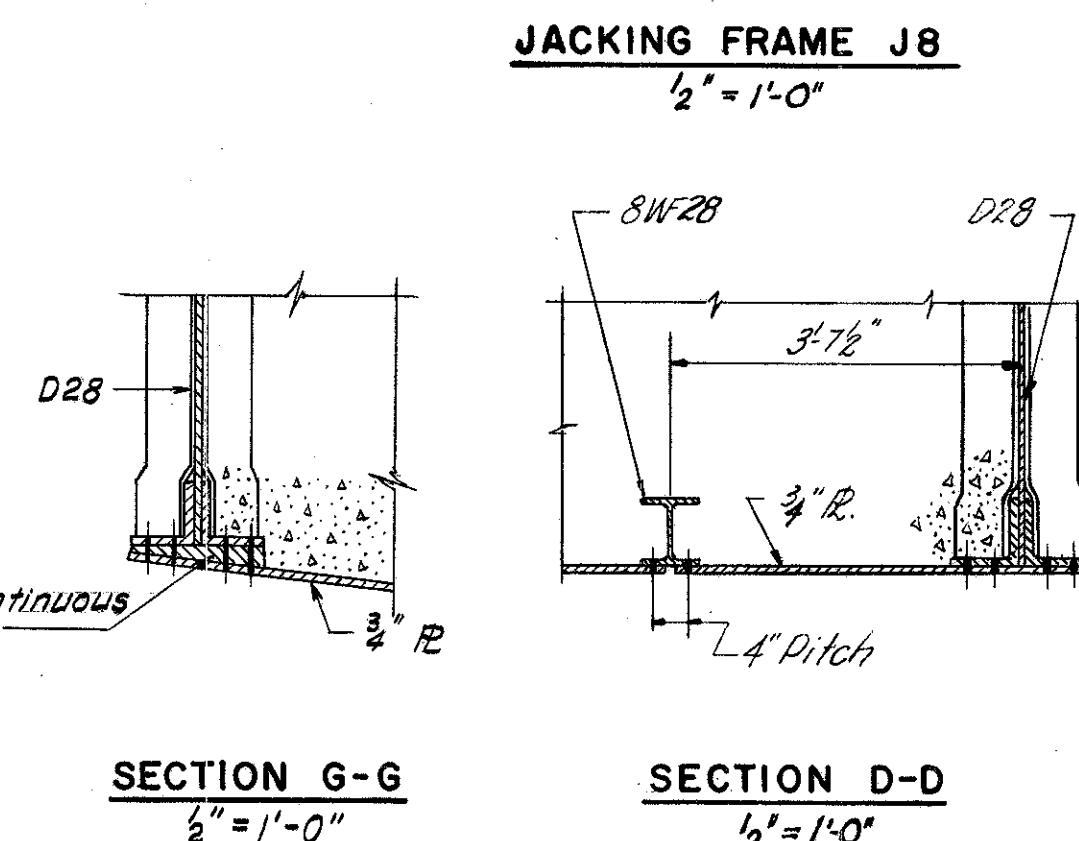
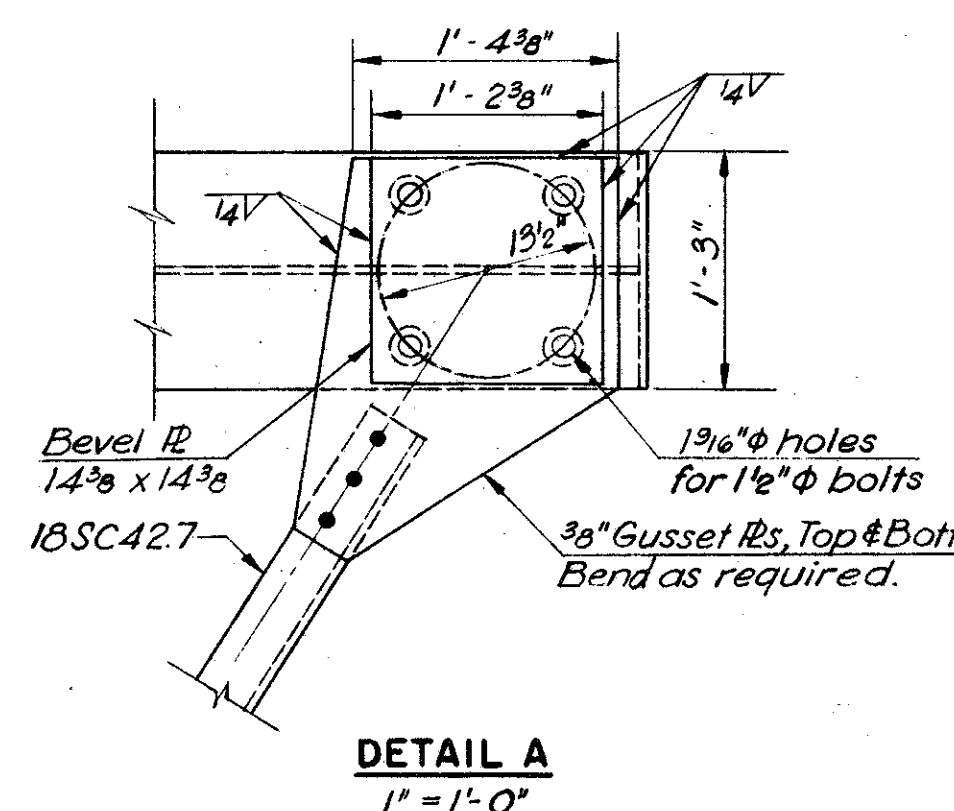
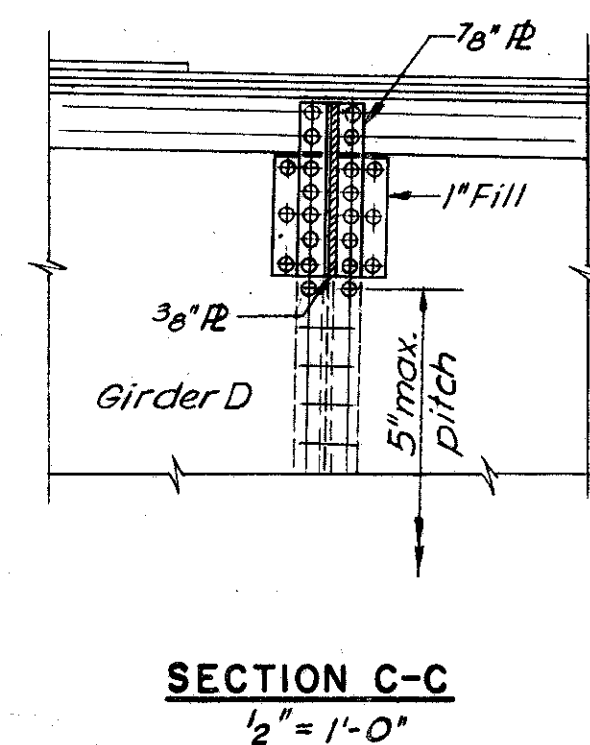
SECTION C-C

SECTION E-E

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



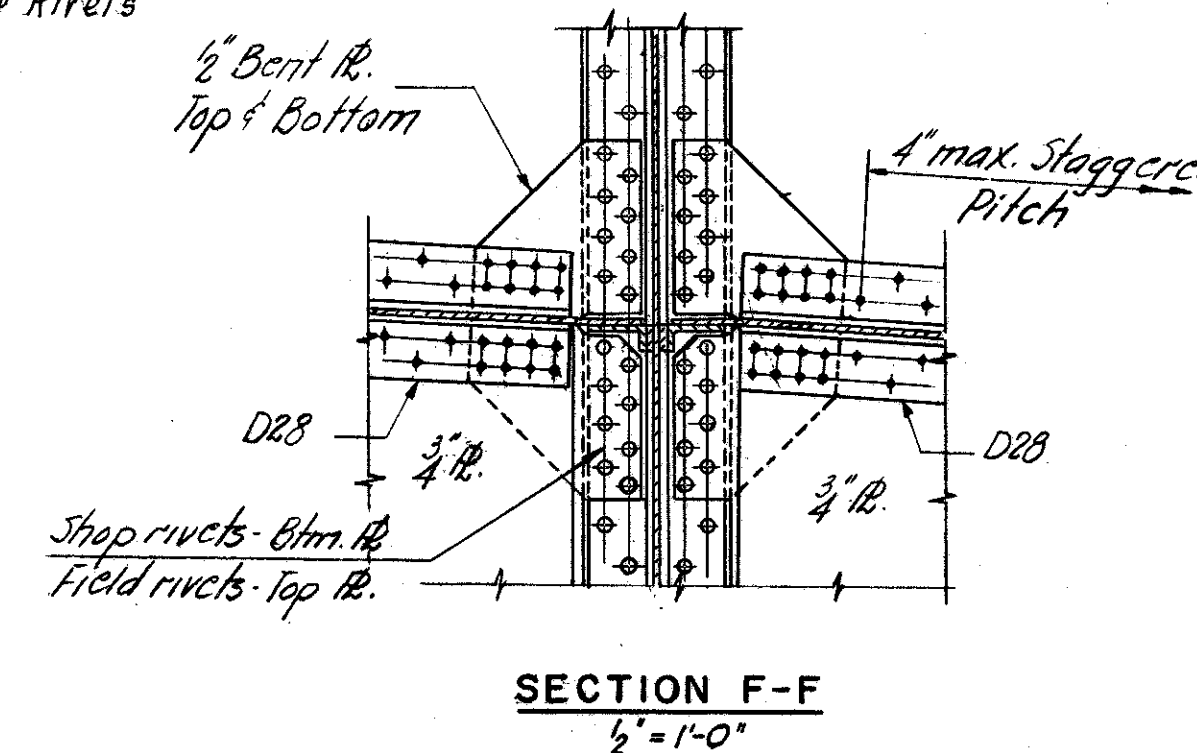
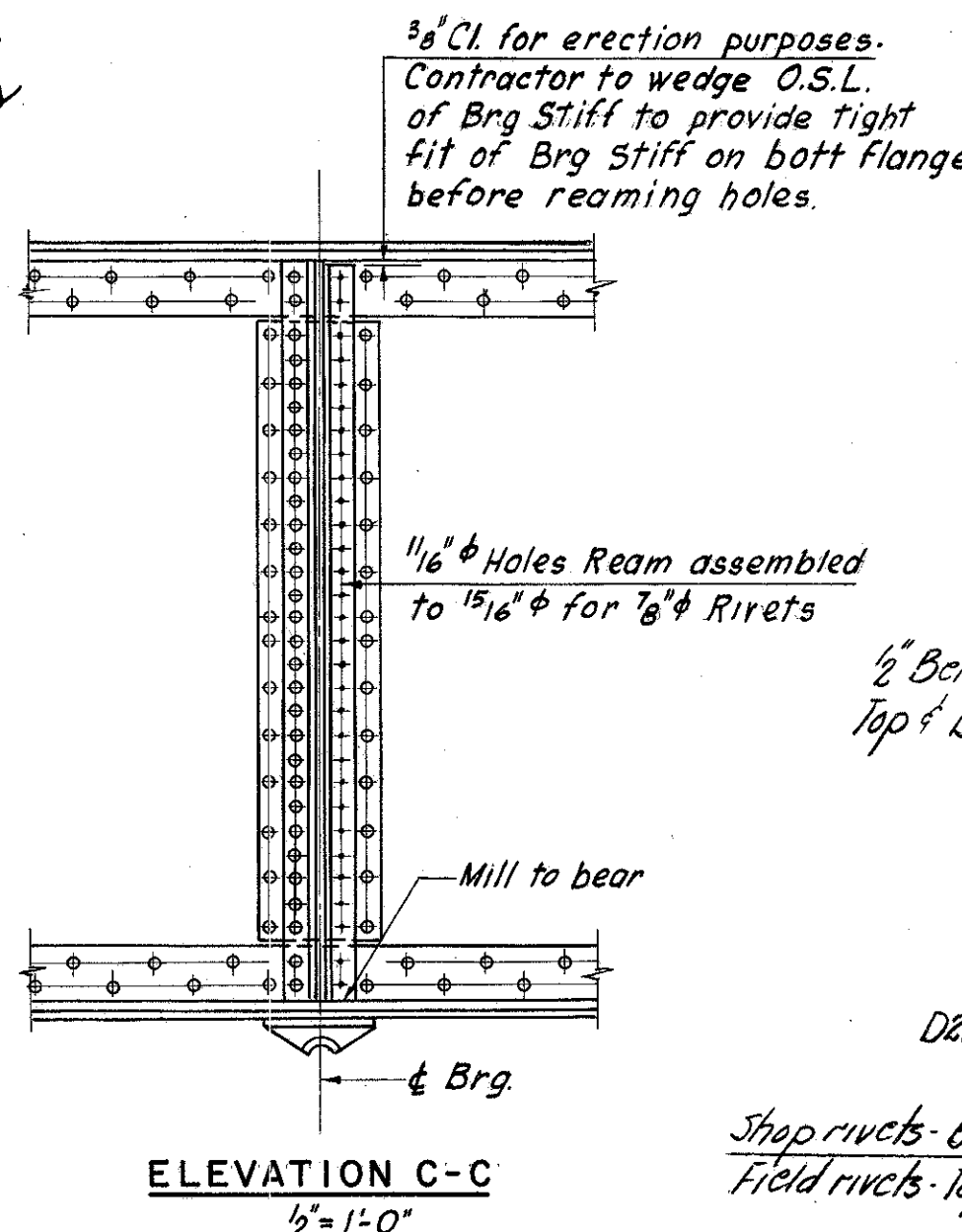
SECTION B-B
1/2" = 1'-0"



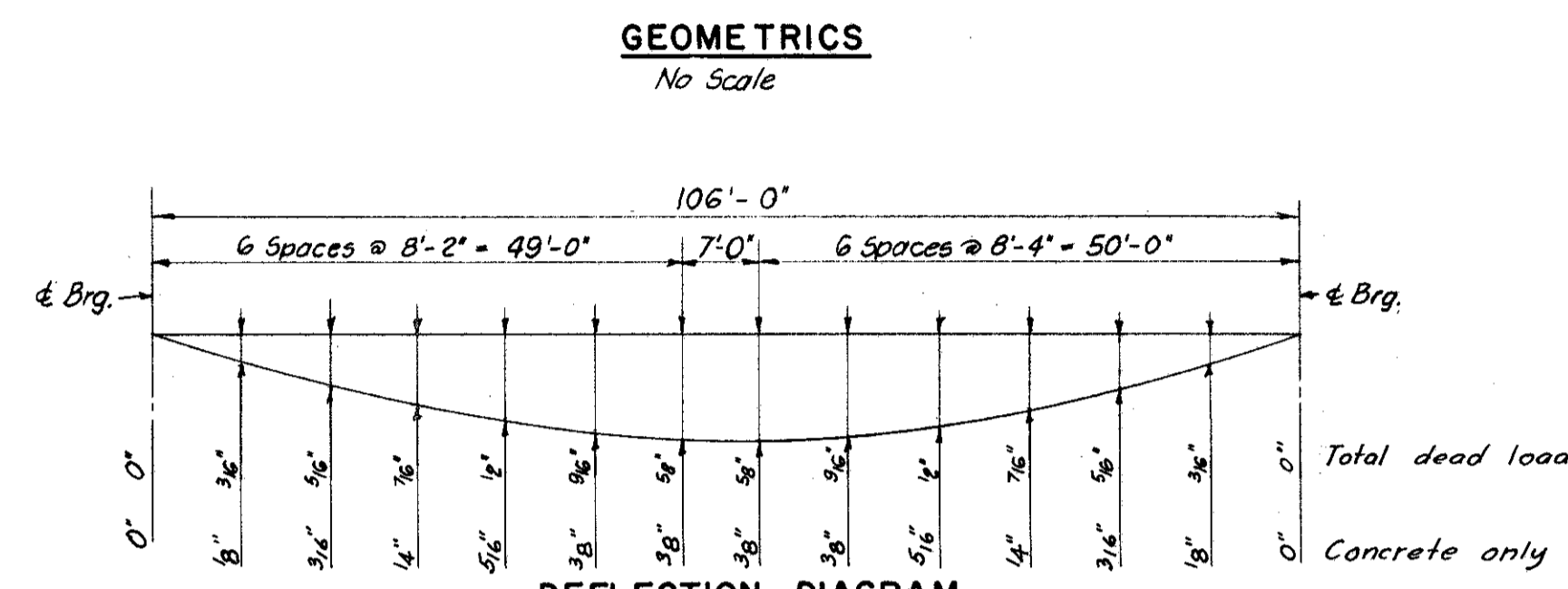
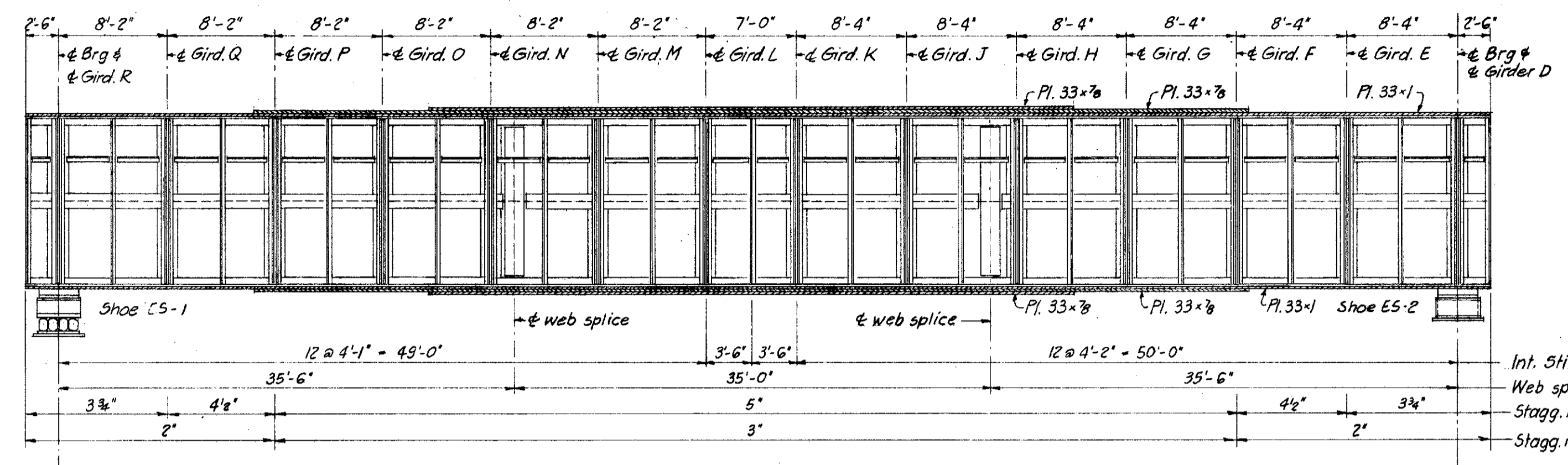
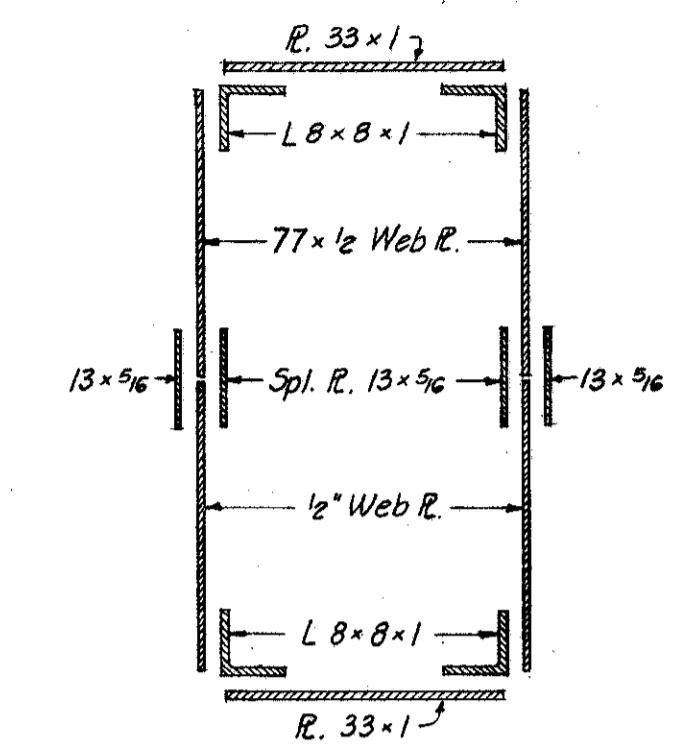
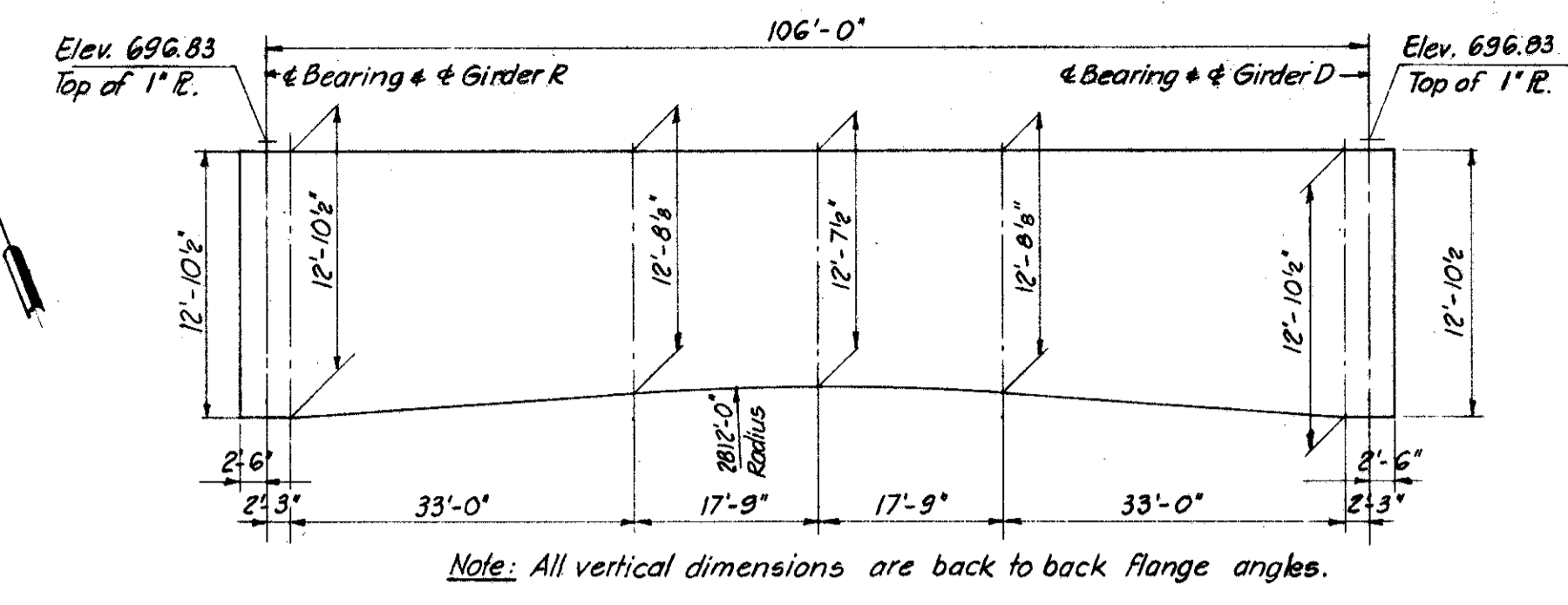
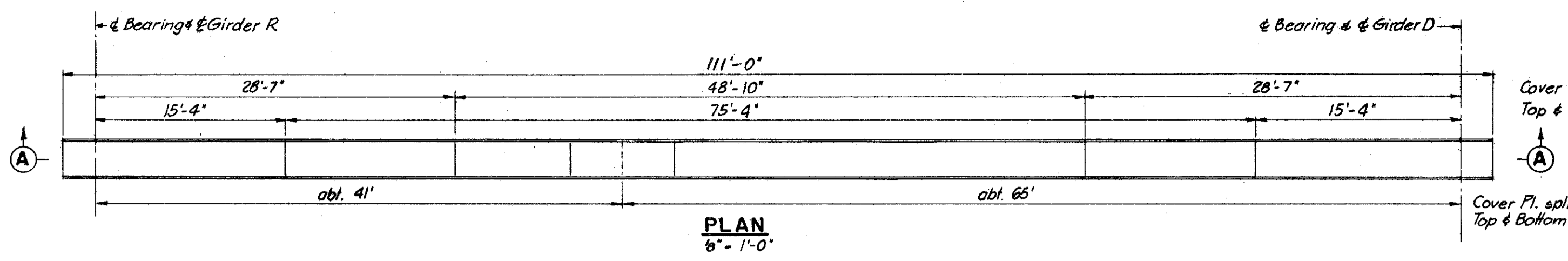
Shown for Girders V and V-V. Section at Girders W and W-W, X and X-X, and Y and Y-Y similar.
Note: For location of Section M-M, see "Ramp E-1 Girders at Rollers," Sh. 86.

DETAILS AT PIER 1B COUNTERWEIGHT

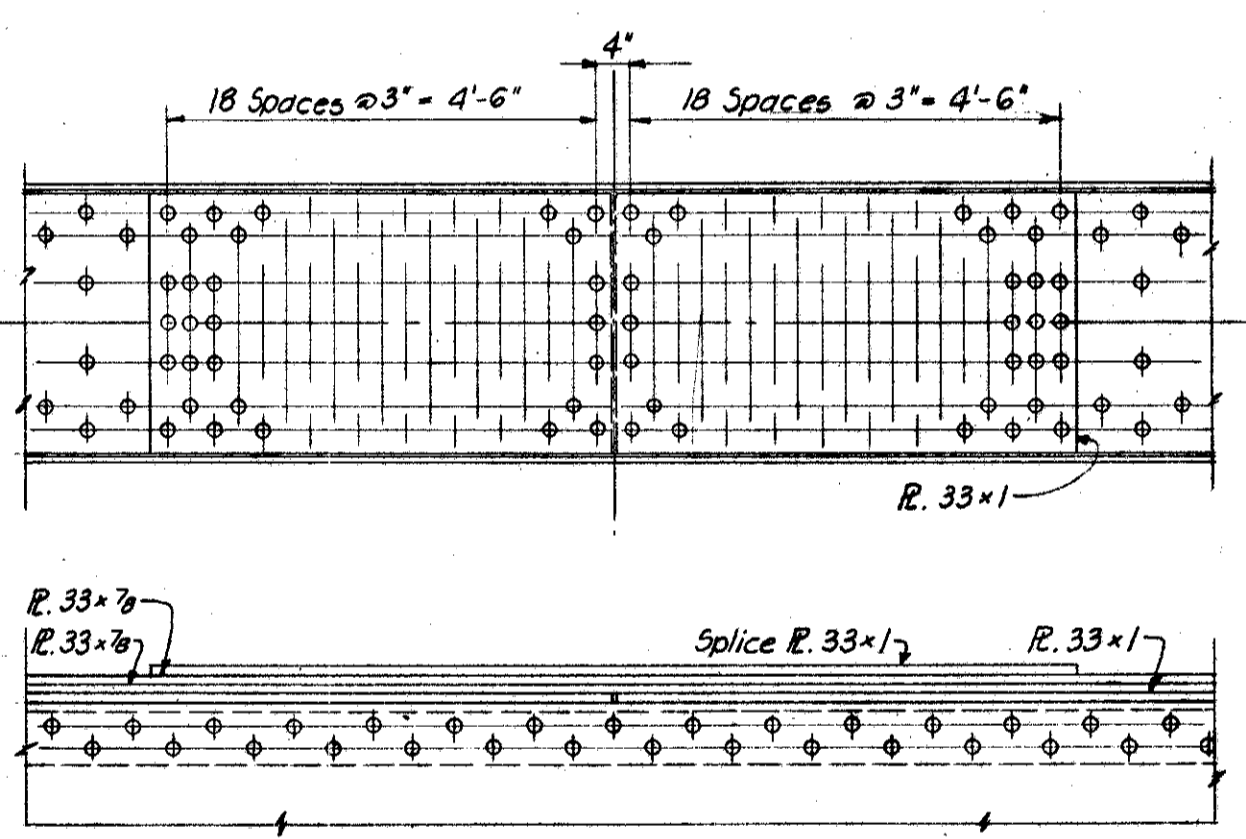
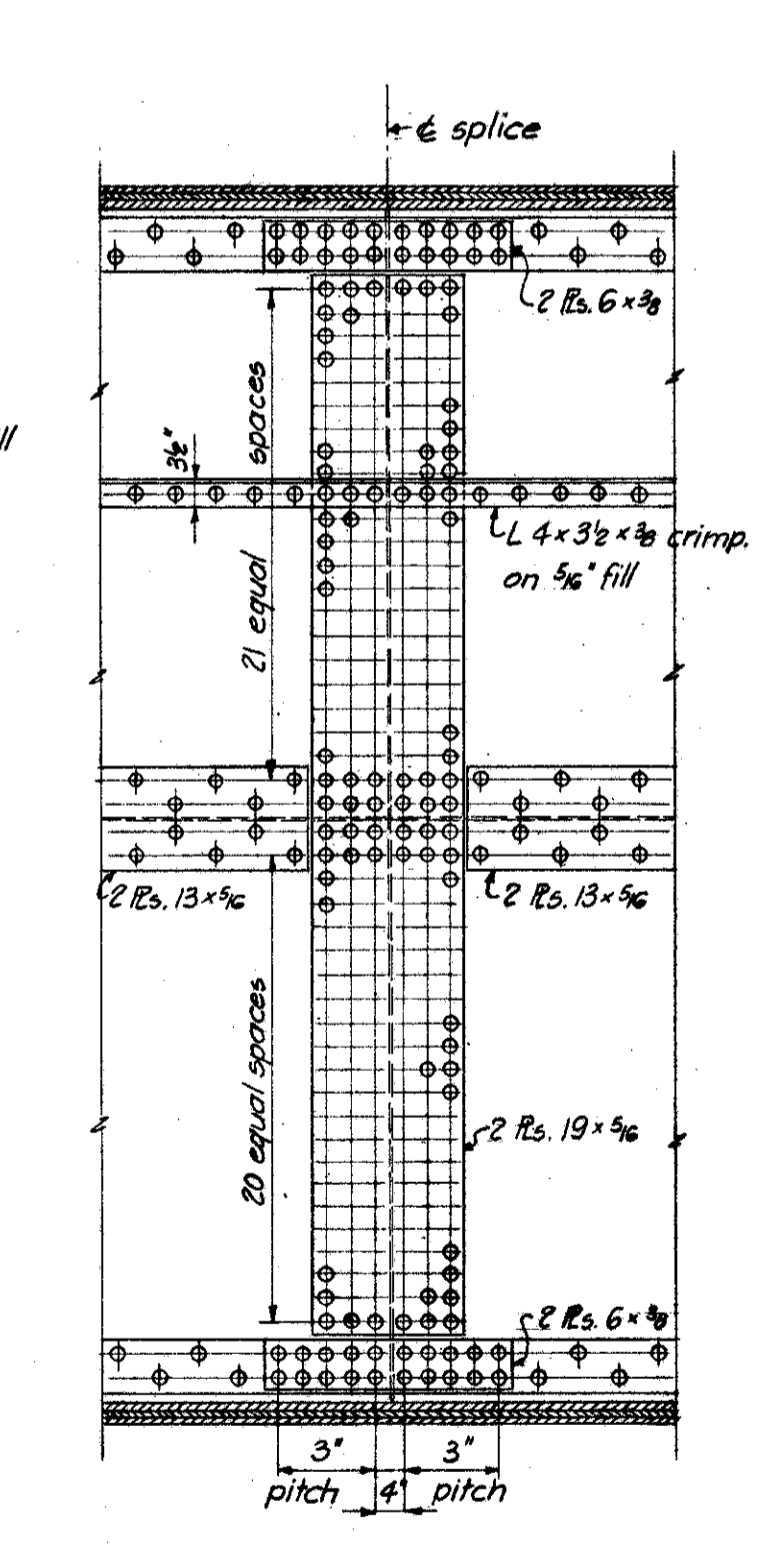
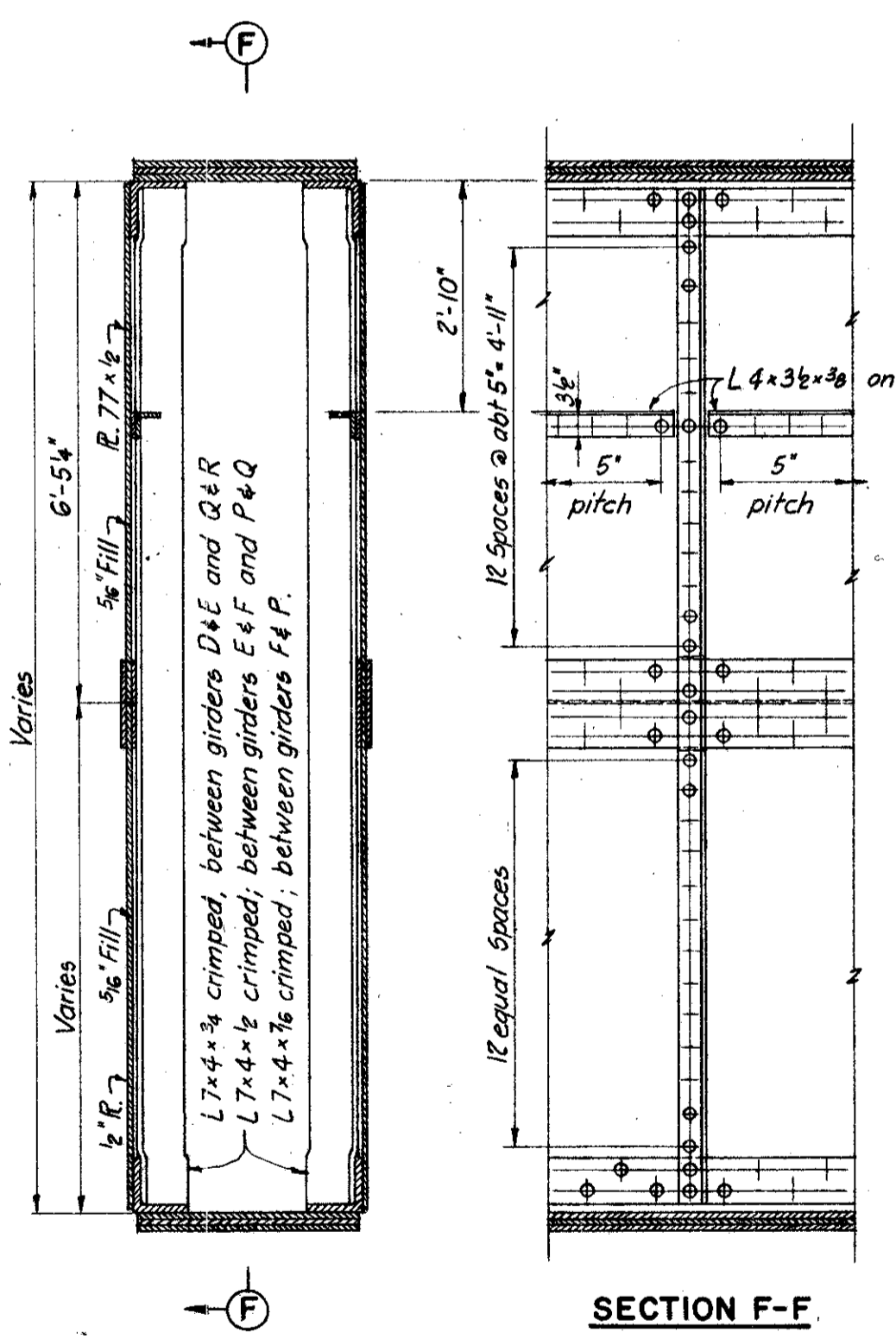
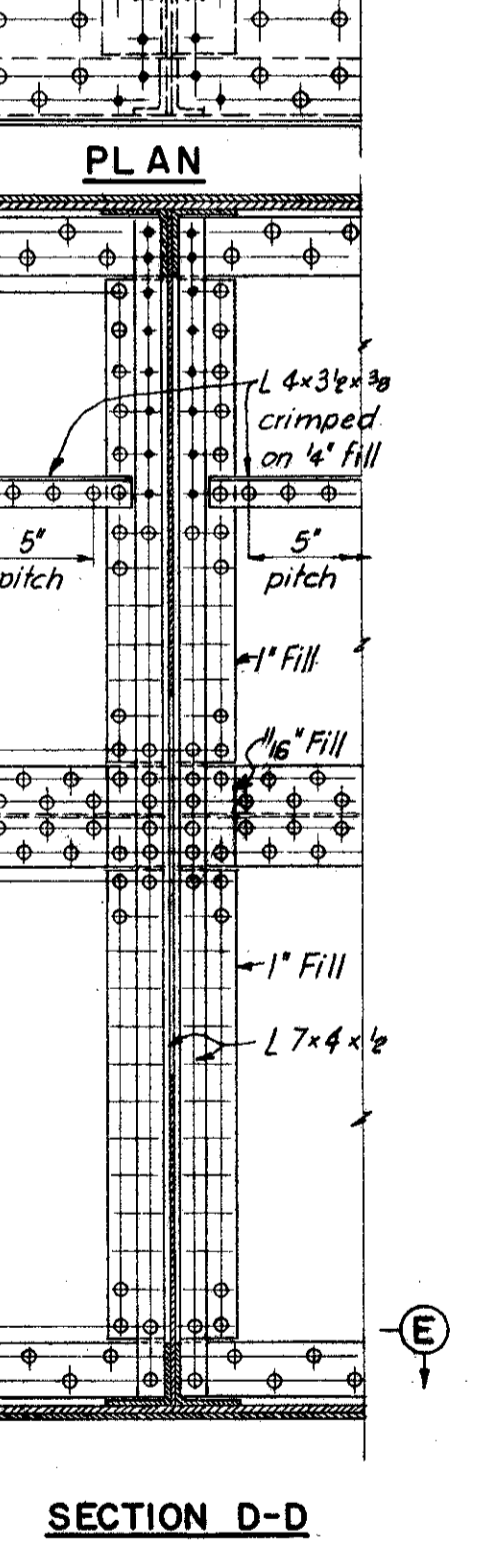
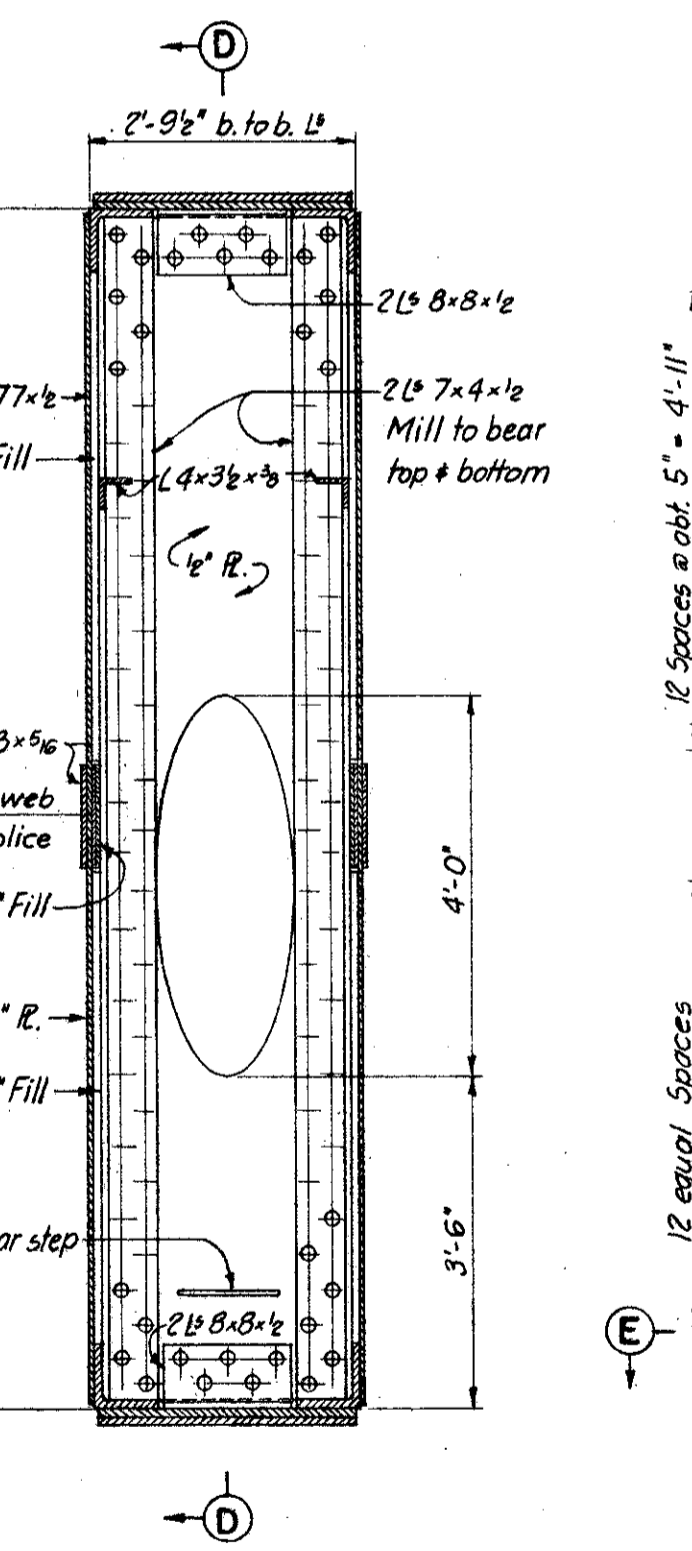
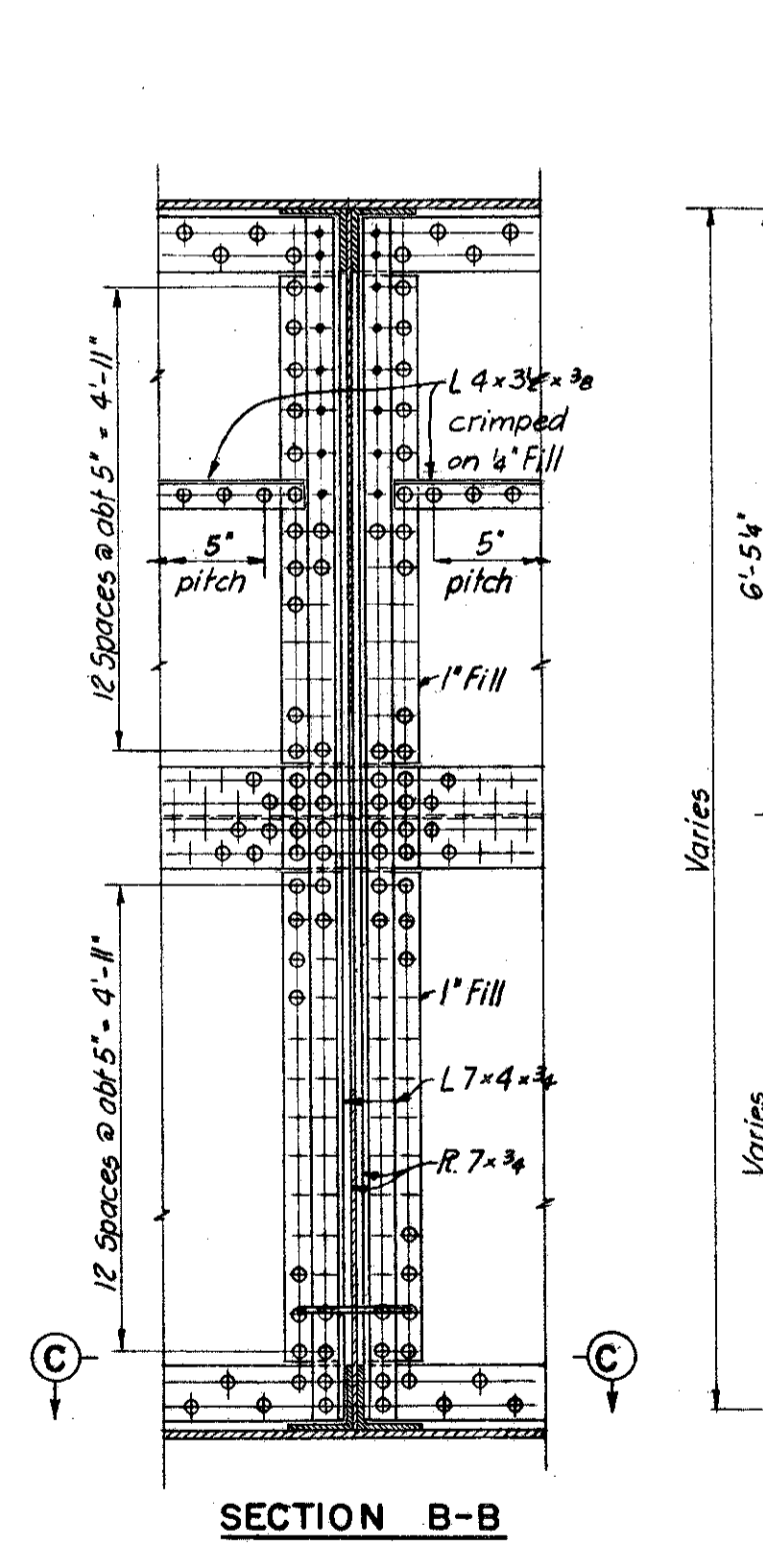
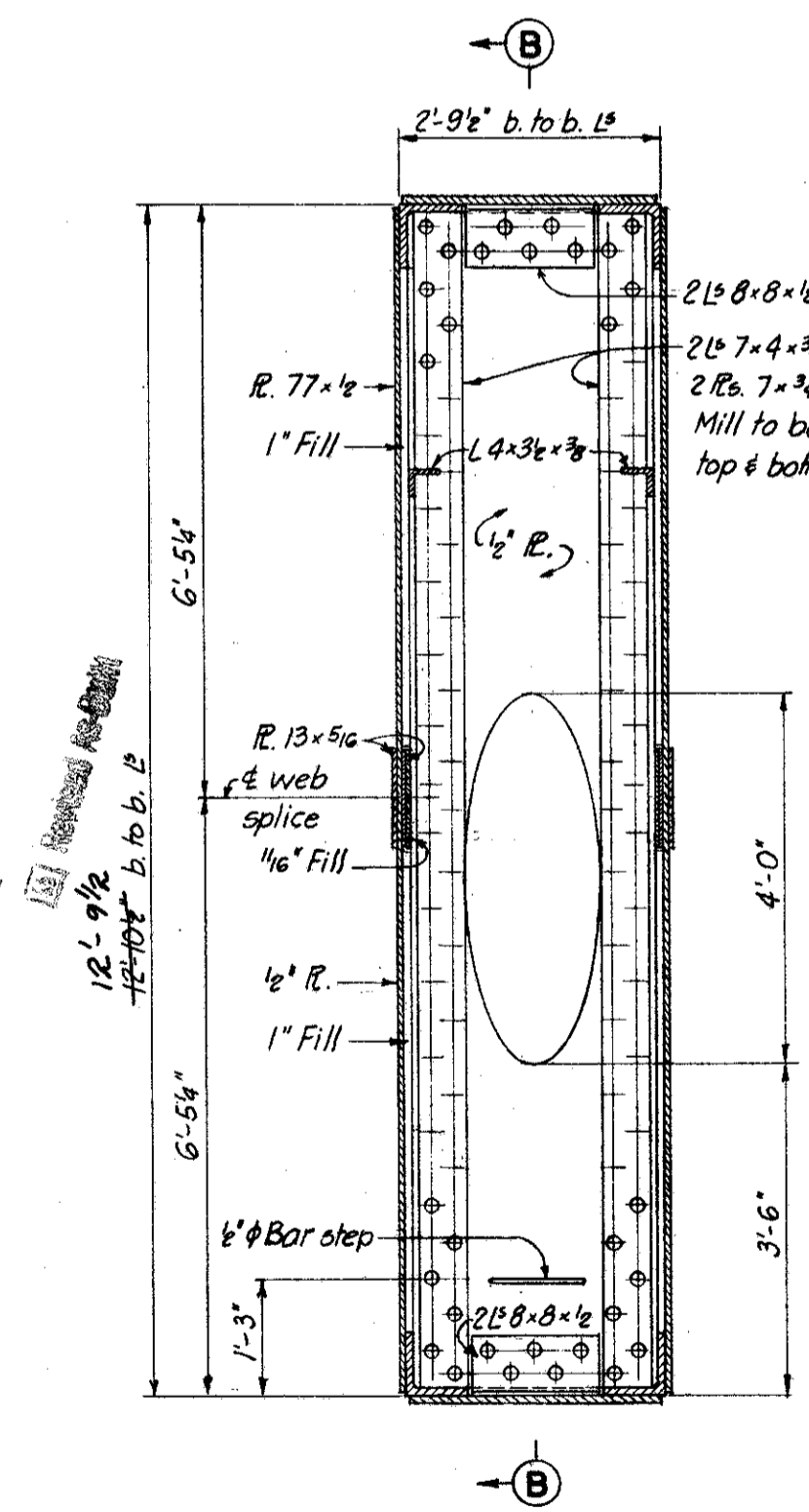
Counterweight to be of plain unreinforced concrete to top of Girders. Deck Slab in area of counterweight to have normal reinforcing.
For Cross Frame and Jacking Frame Notes see Sh. 84.
Concrete Counterweight to be placed to Constr. Jt. prior to placing of Pour No. 24. See Sh. 102.



**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)**



REVISIONS
FEB 23 1959



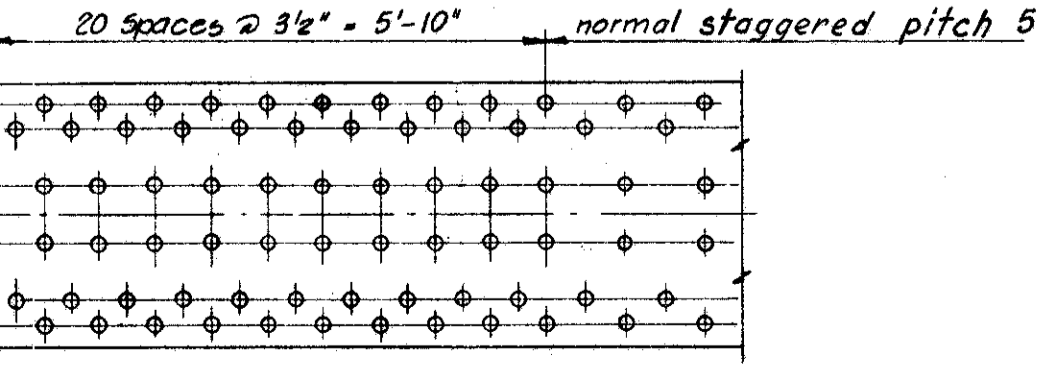
Note: Use field rivets through bearing stiffener on the side of girder only which has connection for plate girder. Plan view of Section B-B is similar to plan of Section D-D.

BEARING STIFFENERS AT BEARINGS
(at Girders D and R)
1/2" = 1'-0"

BEARING STIFFENER AT GIRDERS E TO Q
1/2" = 1'-0"

INTERMEDIATE STIFFENERS
1/2" = 1'-0"

WEB SPICE
1/2" = 1'-0"



COVER PLATE END DETAIL
1/2" = 1'-0"

NOTES:
For box girder end details and for plate girder connection details see Sh. 88
Use 5" staggered pitch for all stitch rivets in cover plates.
For details of shoes E5-1 and E5-2 see Sh. 88

**U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
BOX GIRDER**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE as shown
MADE H.G. DATE 11.26.56
TRCD H.R. DATE 3-18-57
CKD B.J. DATE 1.31.57

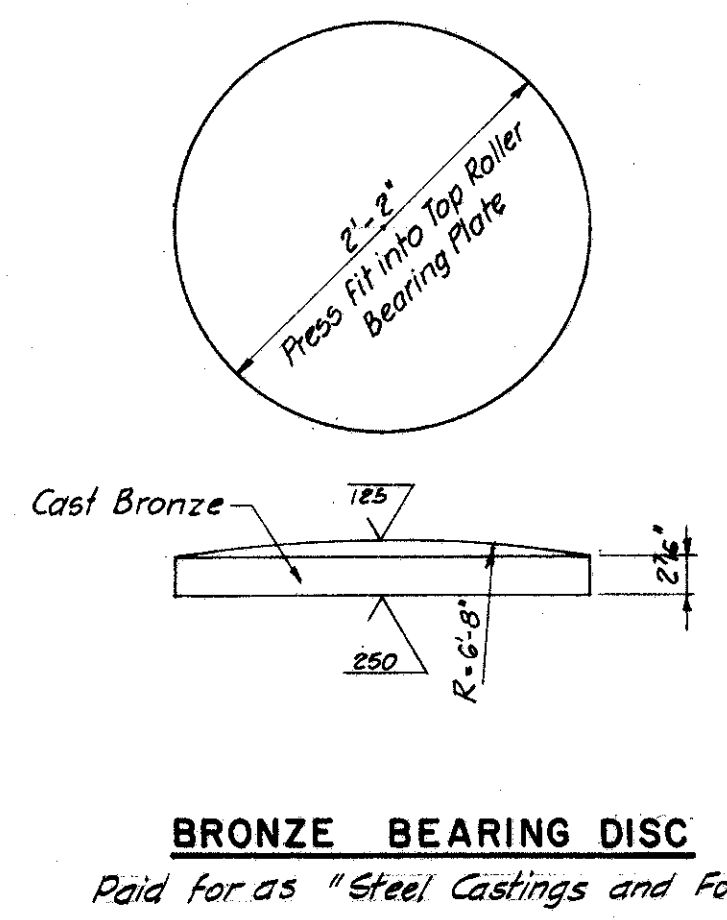
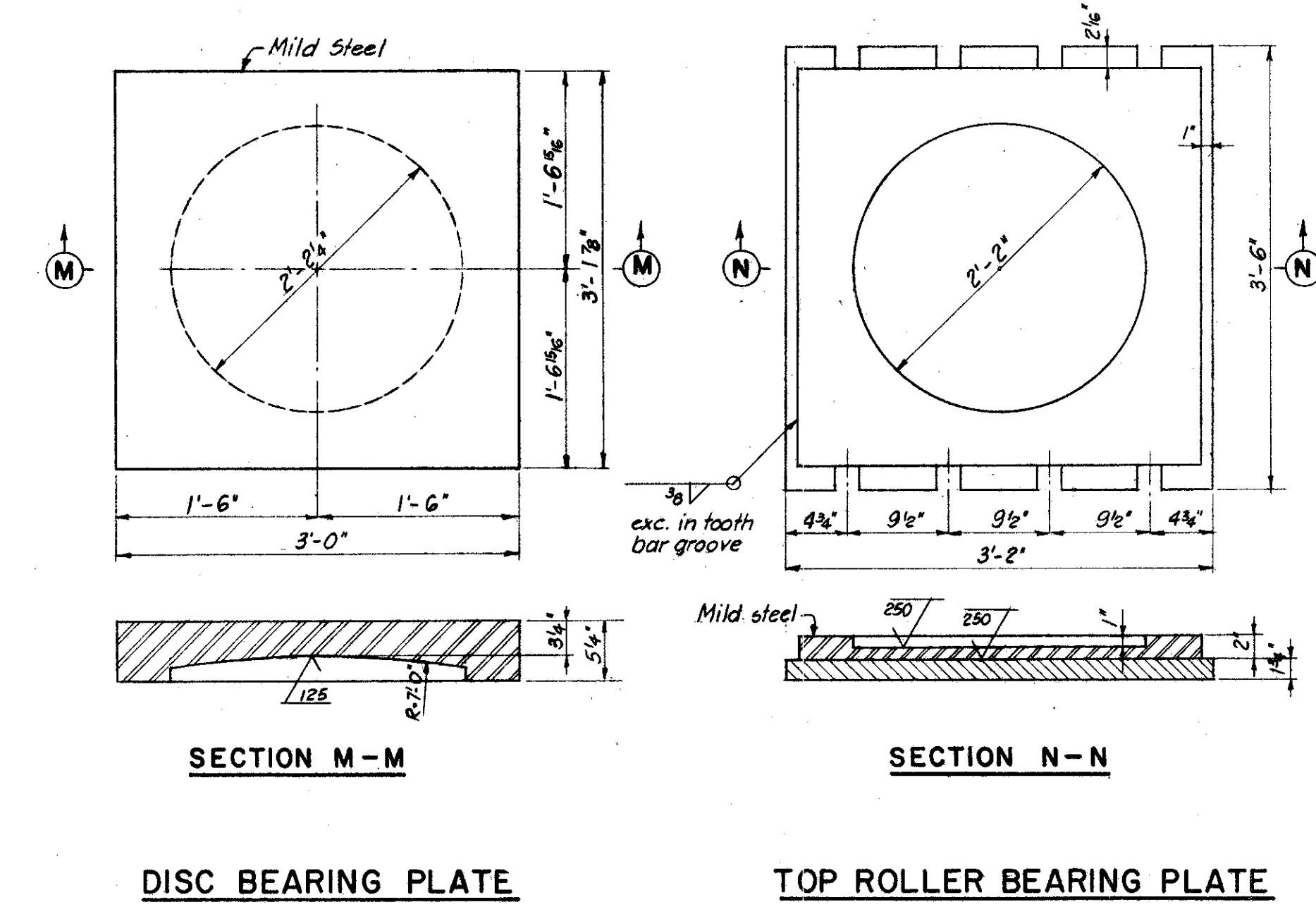
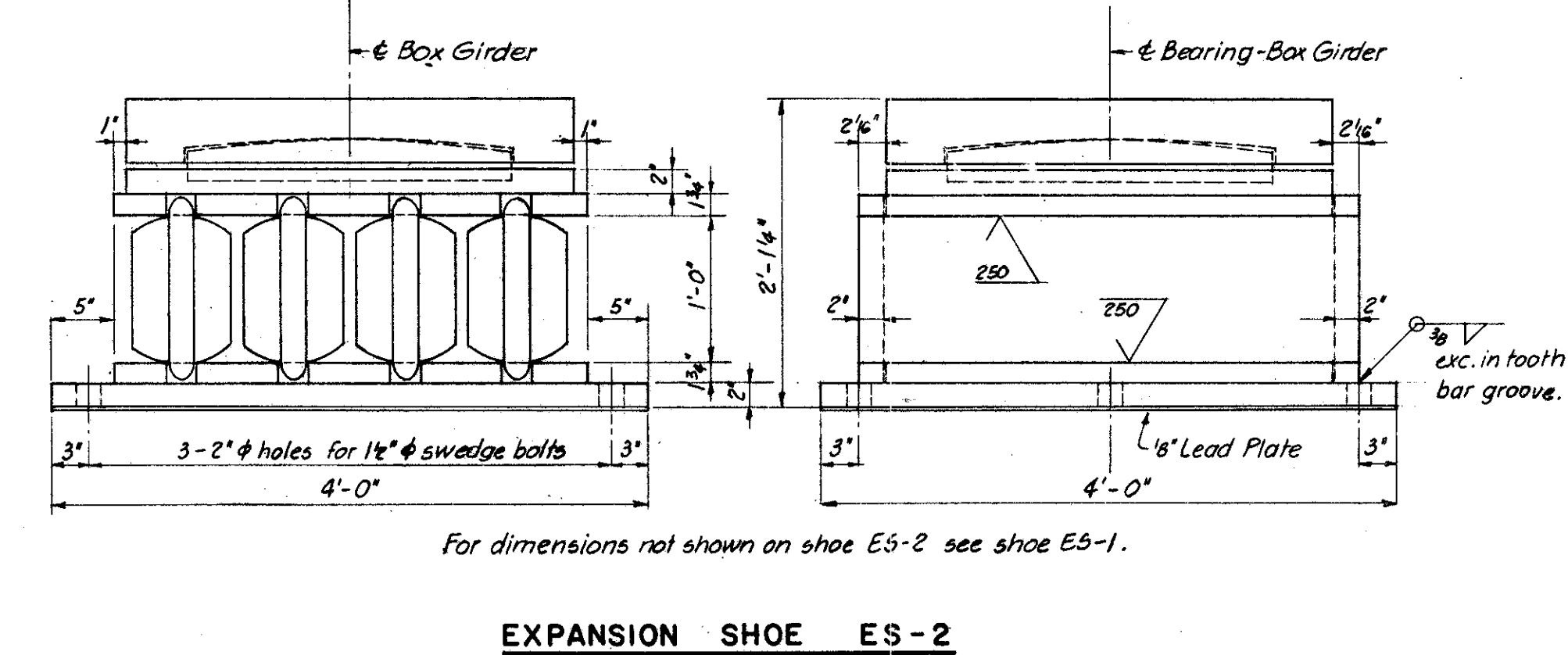
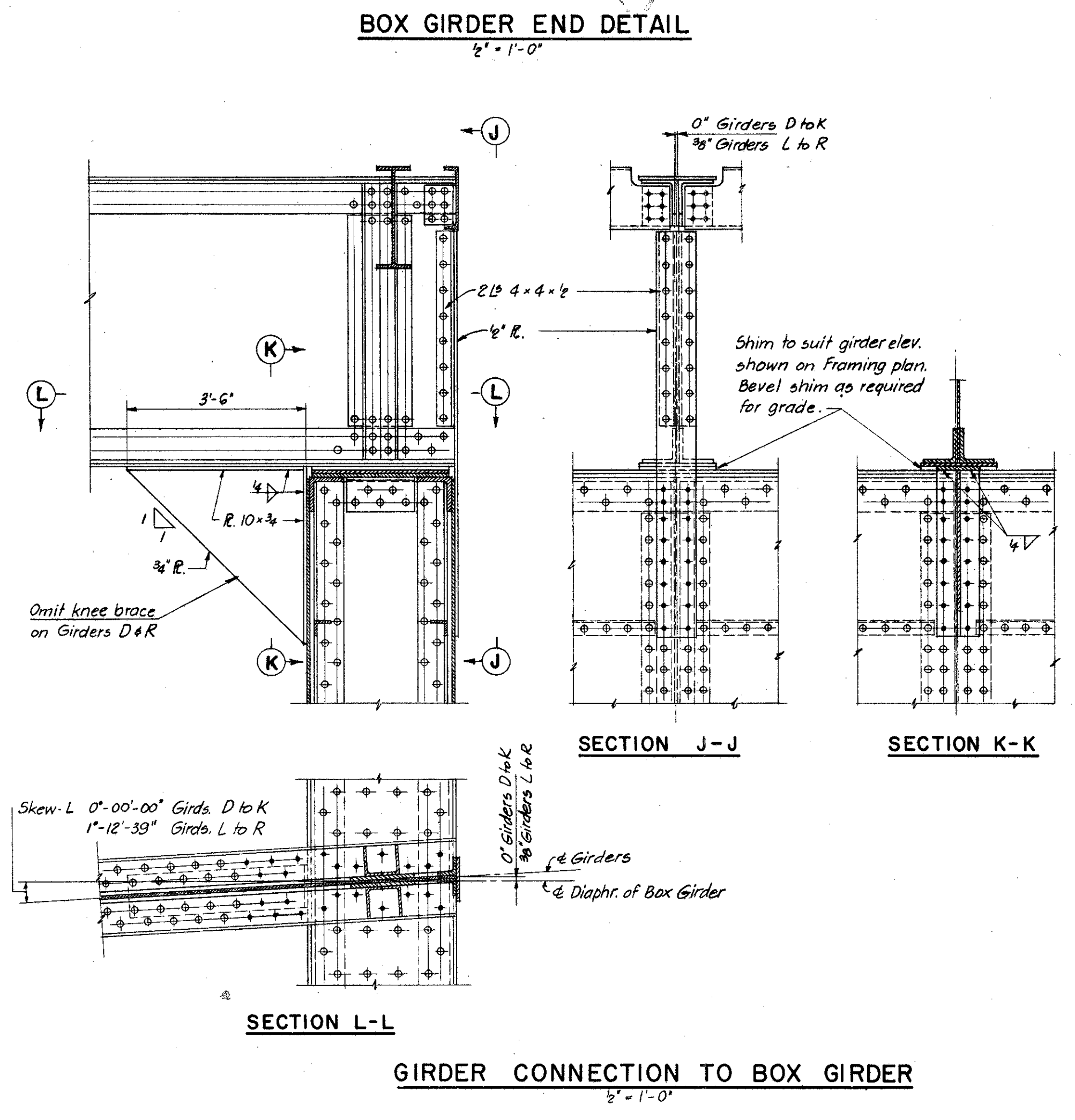
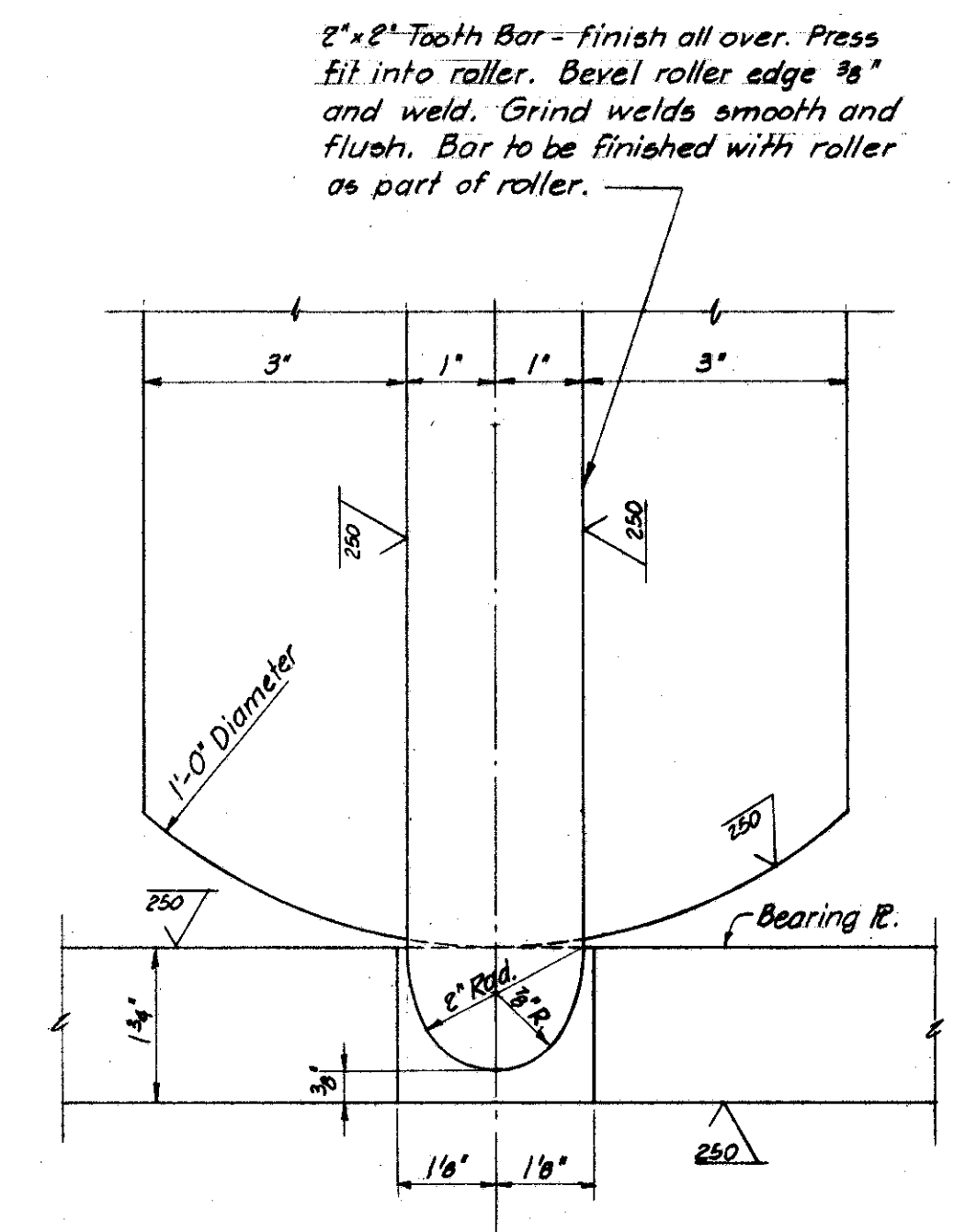
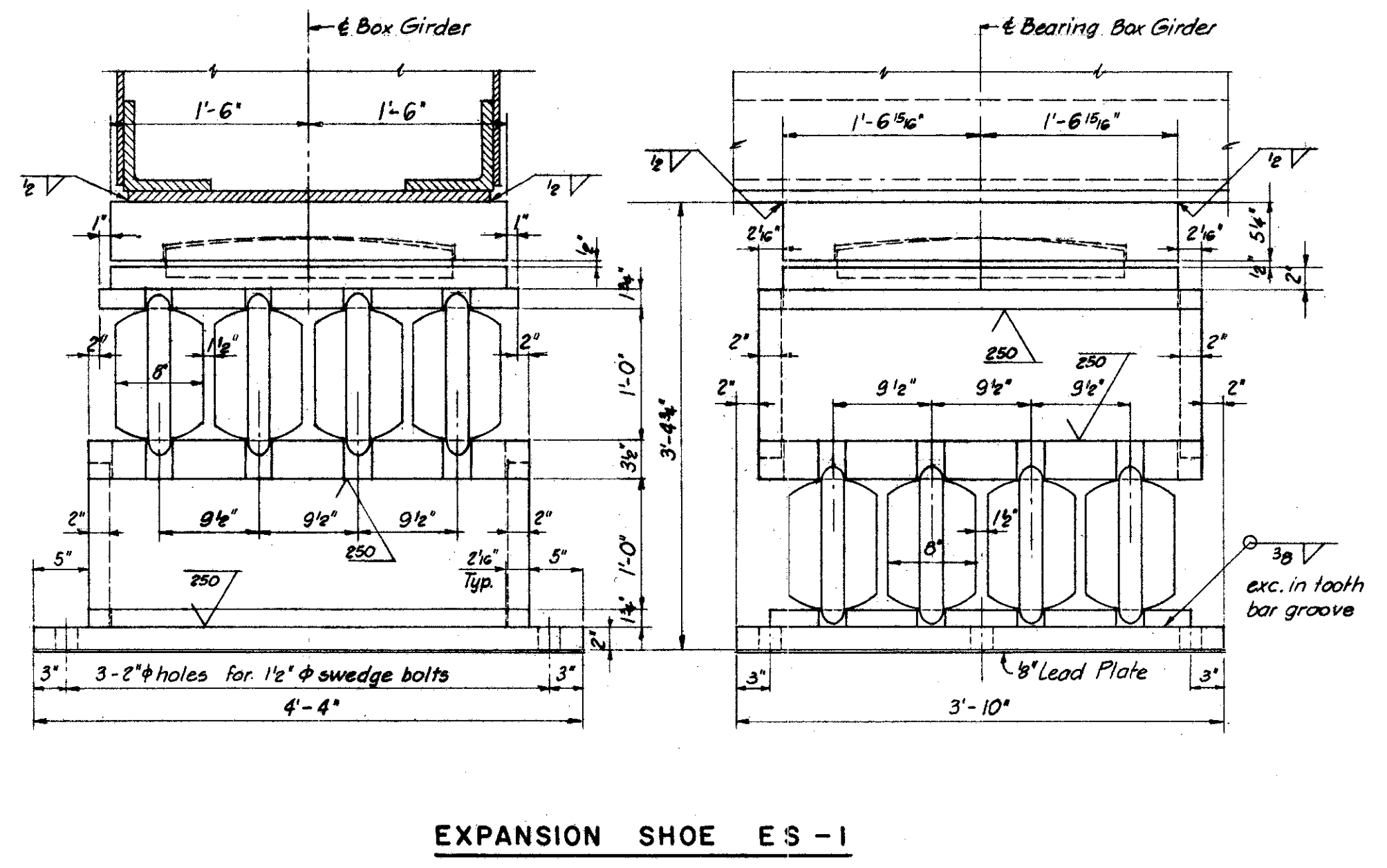
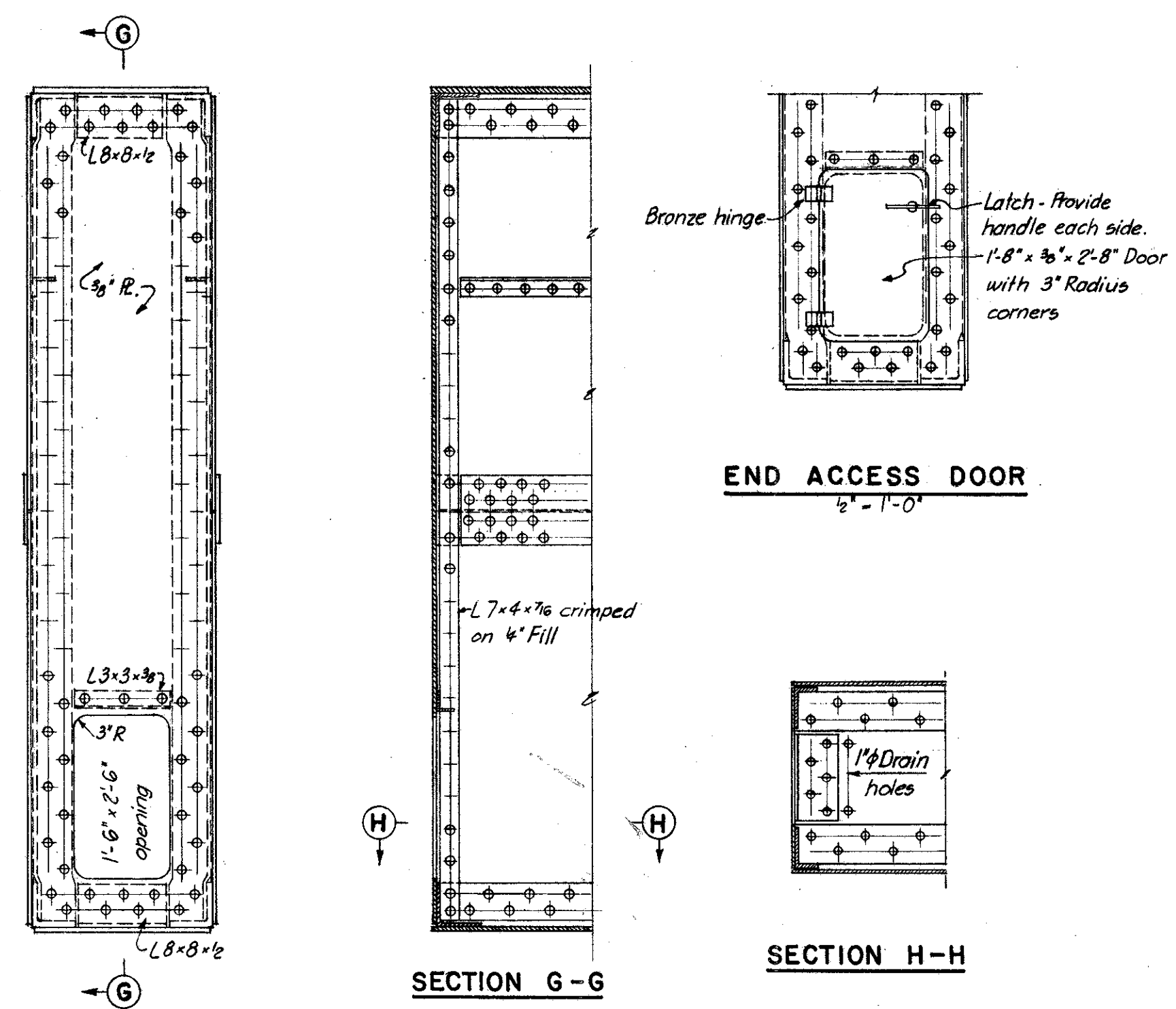
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-87

UNCLASSIFIED
FEB 23 1982

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

88
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



NOTES:

Use Structural Steel Sec. M-7.4(a) except as noted.

Rollers shall be set vertical under full dead load at 60° F.

Machined surfaces of rollers which bear on base plates and all exposed surfaces shall be painted.

Spaces around anchor bolts in base plates shall be filled with an approved metallic filler, such as babbitt, poured in place before setting nuts. See Sh. 89 for anchor bolt details.

All contact surfaces between metal parts shall be finished as shown.

All base plates and bearing plates shall be scribed with longitudinal and transverse center lines.

Mild steel shall be classified for payment as "Steel Castings and Forgings."

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

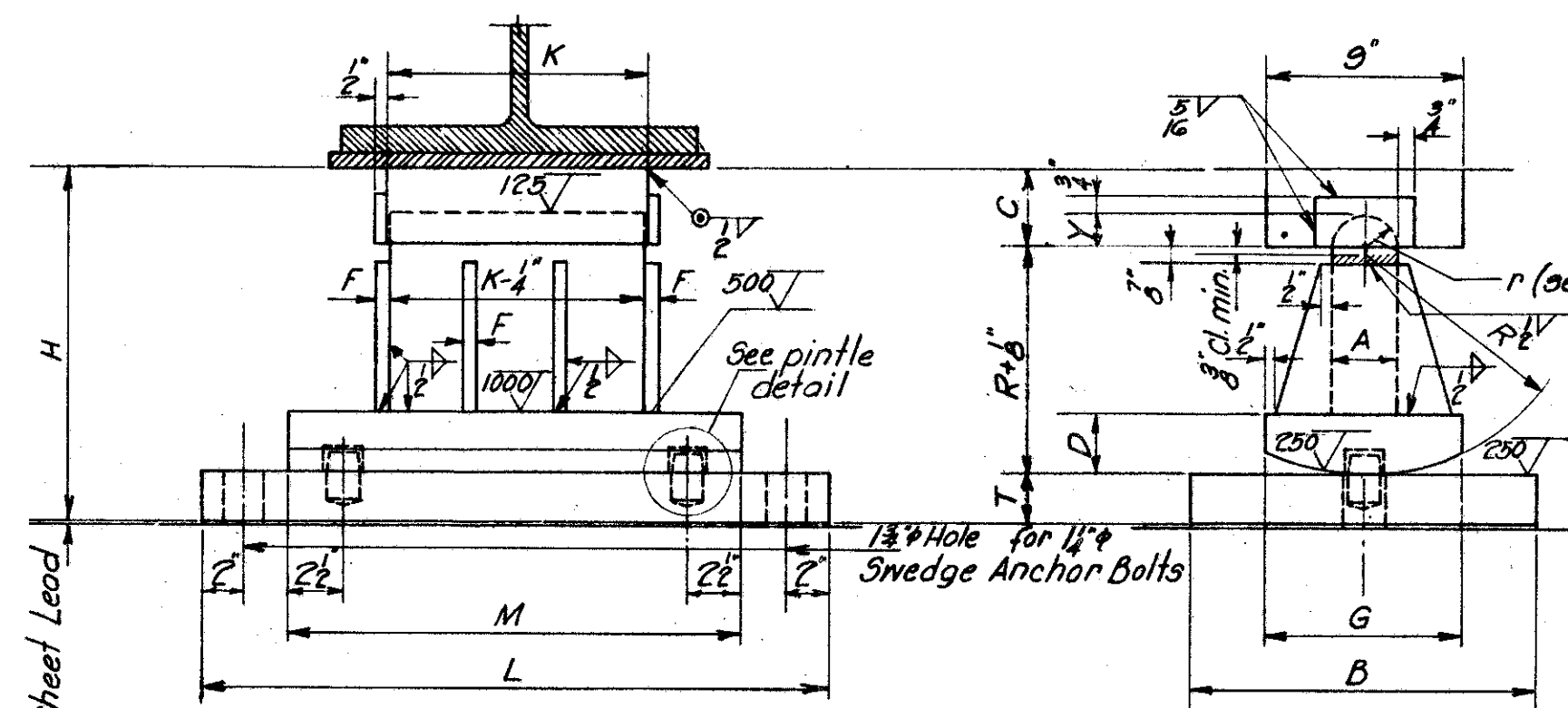
BOX GIRDER DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

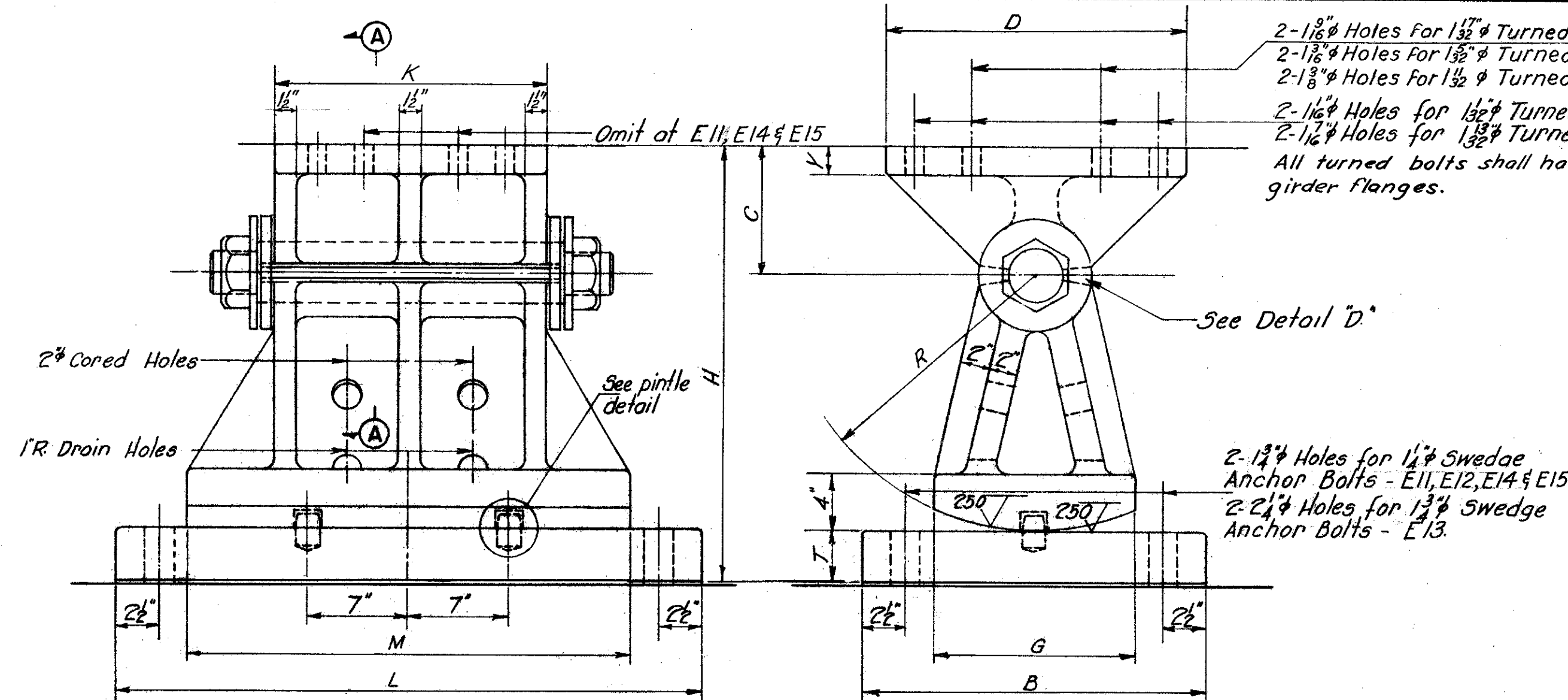
SCALE 1" = 1'-0" unless noted
MADE H.G. DATE 11.30.56
TRCD V.R.S. DATE 2-8-57
CKD B.J. DATE 1.31.57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-88

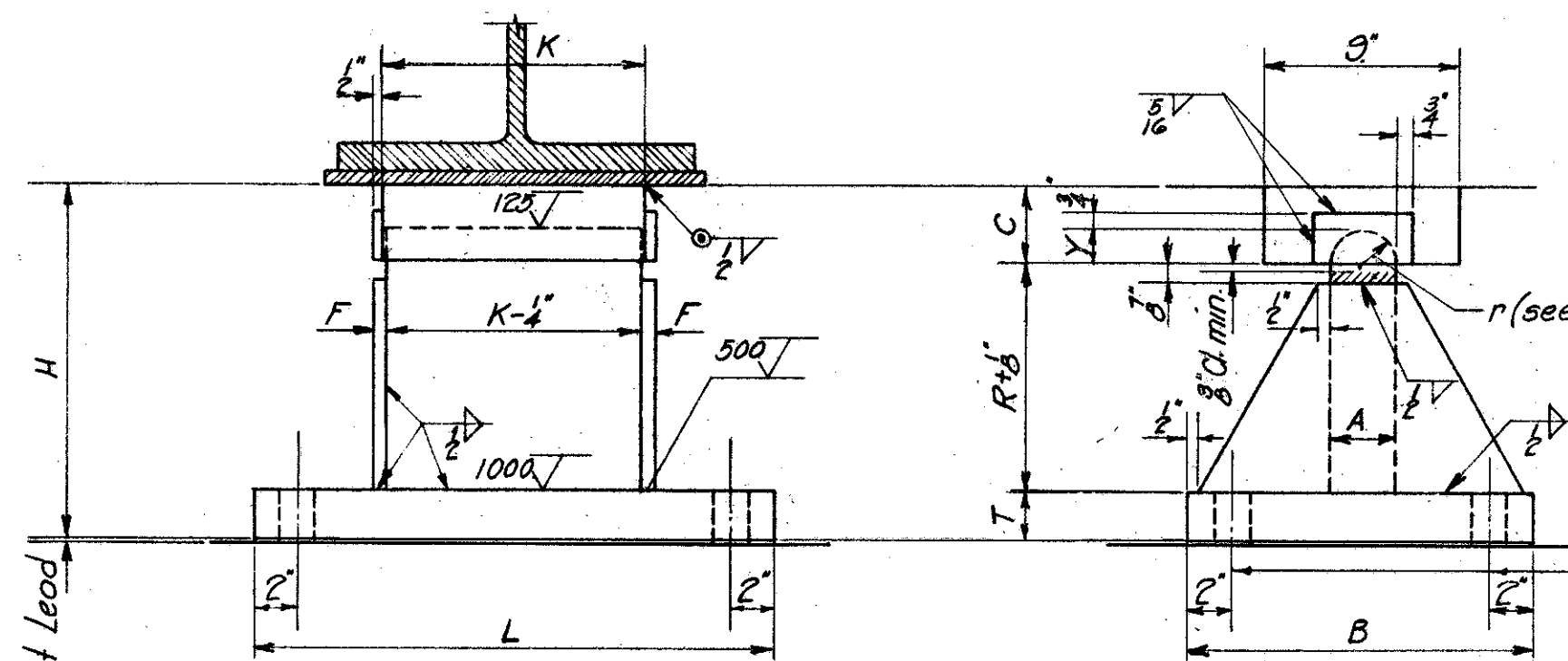
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



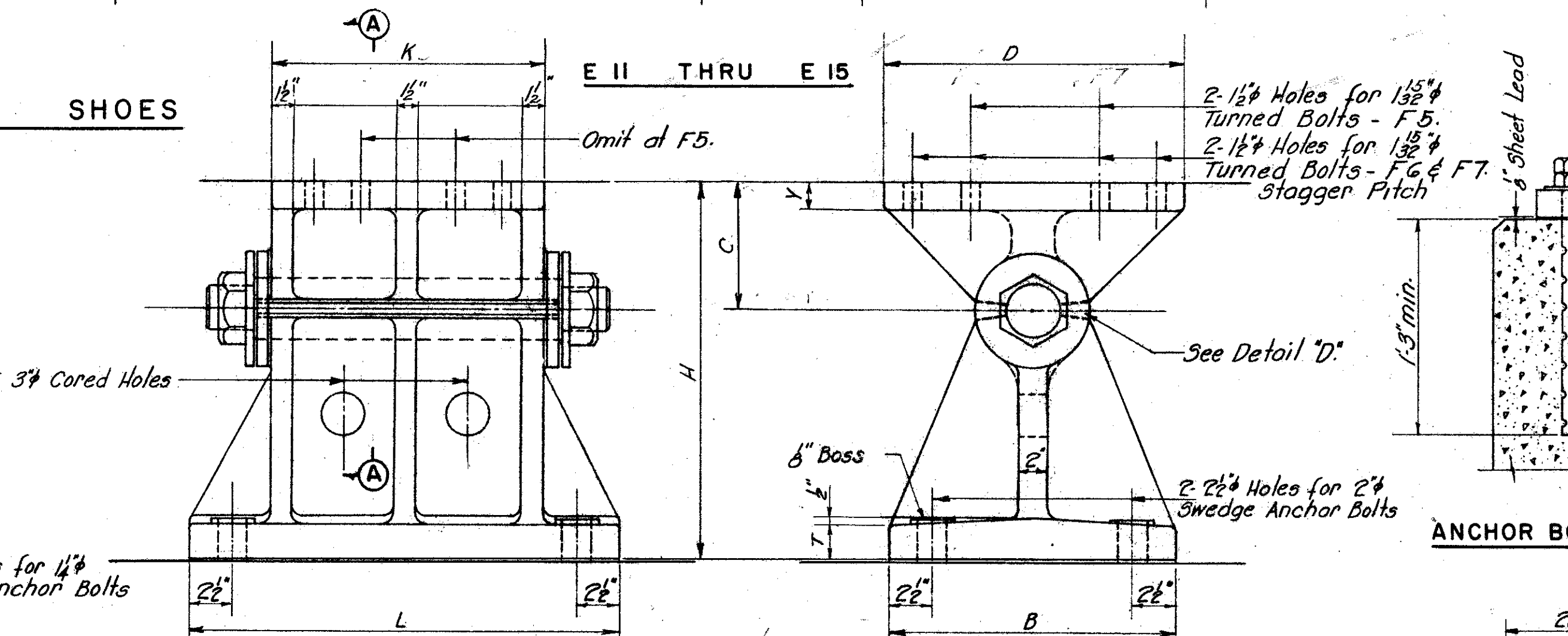
E I THRU E 10



EXPANSION SHOES

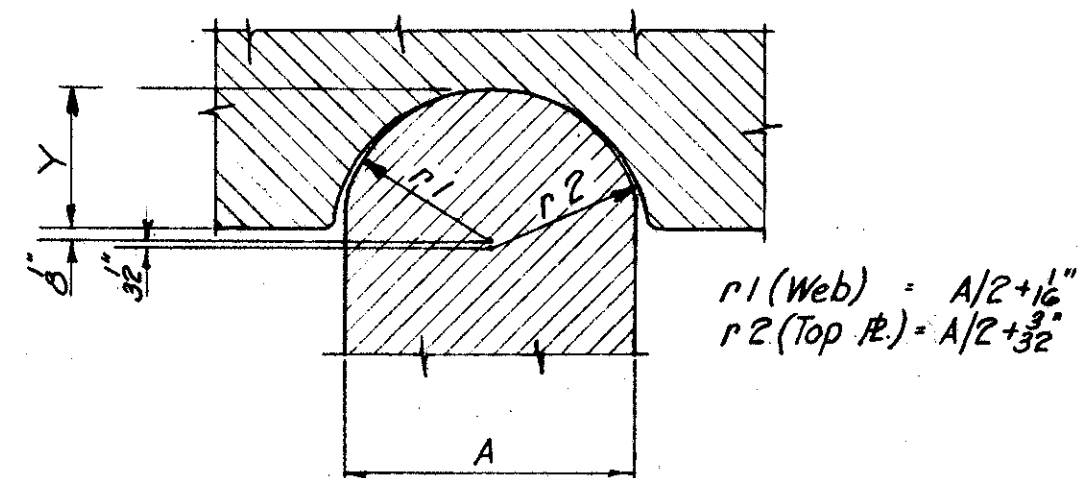


F I THRU F 3



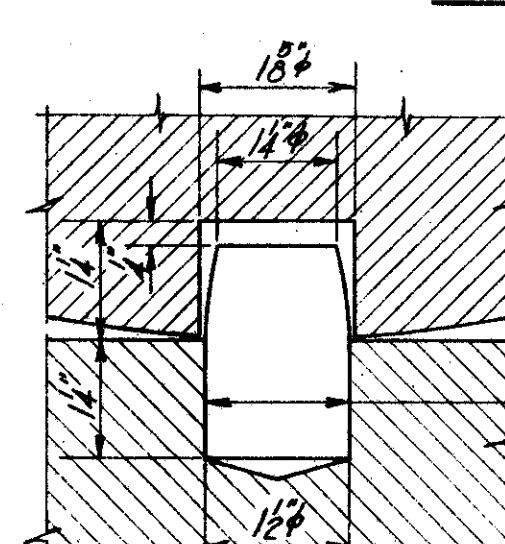
F 5 THRU F 7

FIXED SHOES

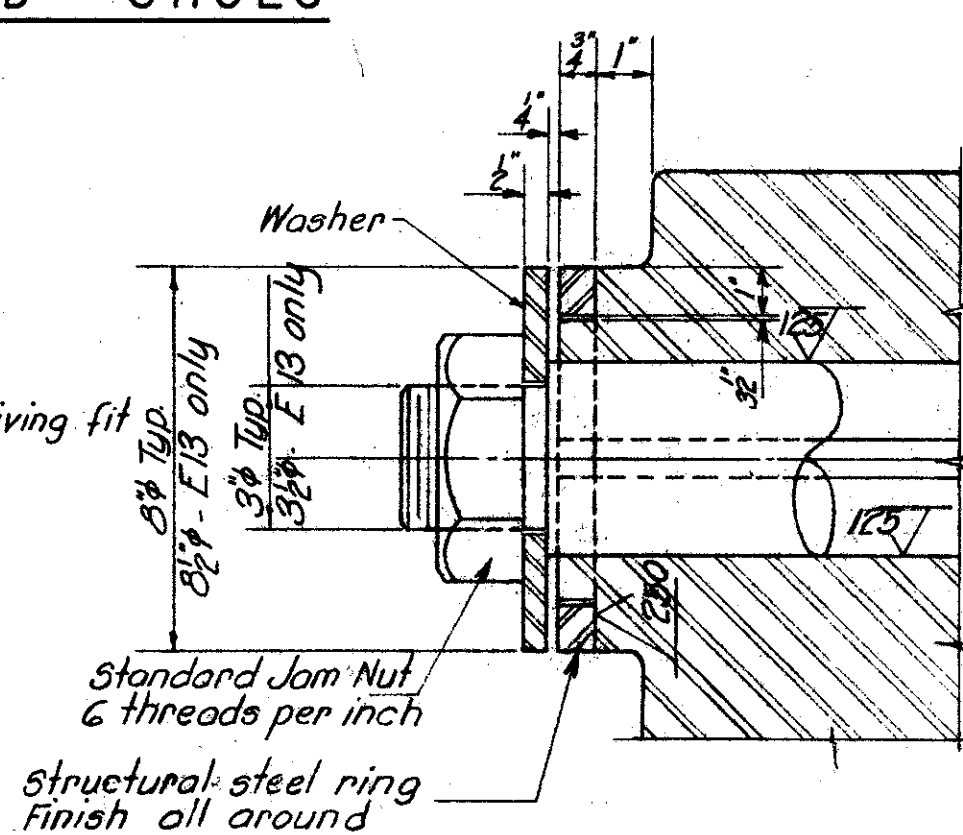


DETAIL "A"
Half Scale

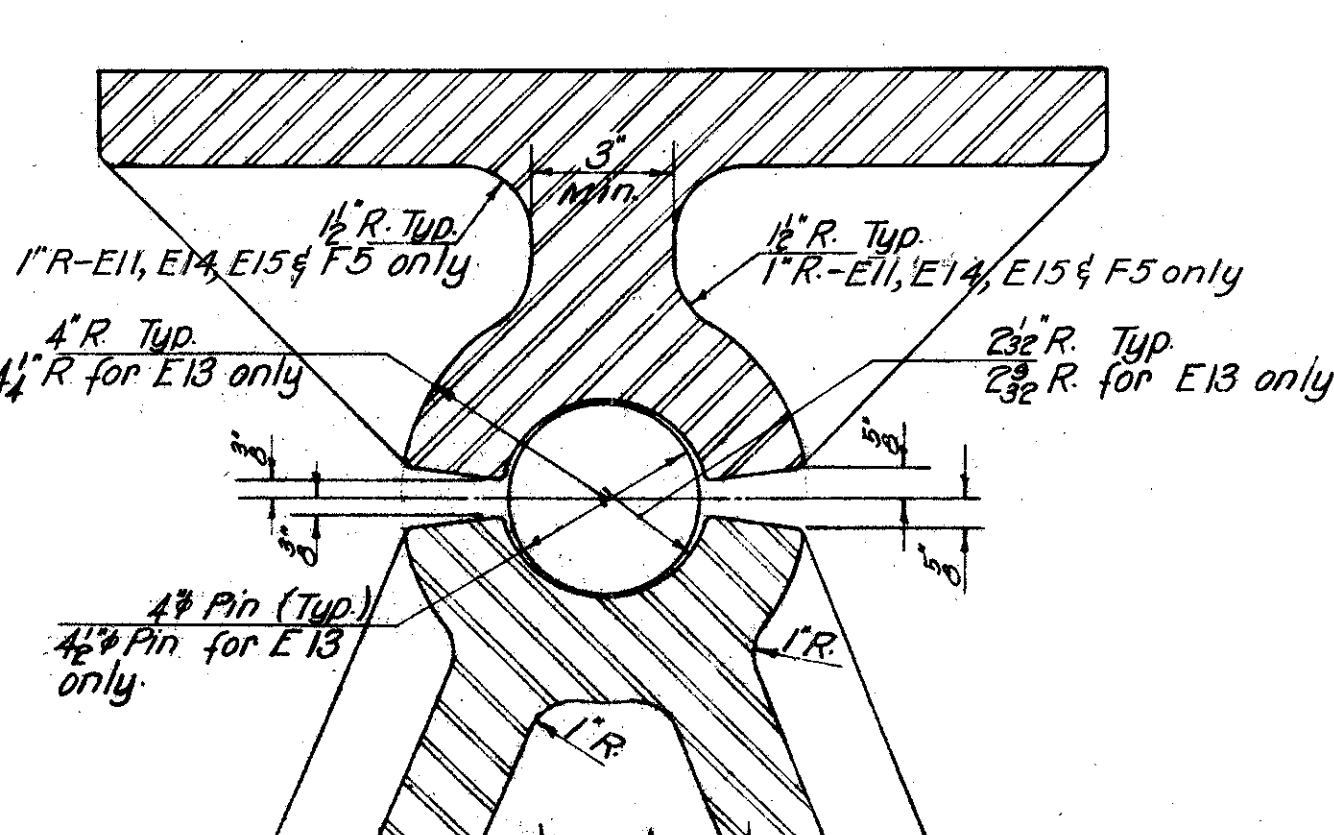
r_1 (Web) = $A/2 + 1/16"$
 r_2 (Top Fl.) = $A/2 + 3/32"$



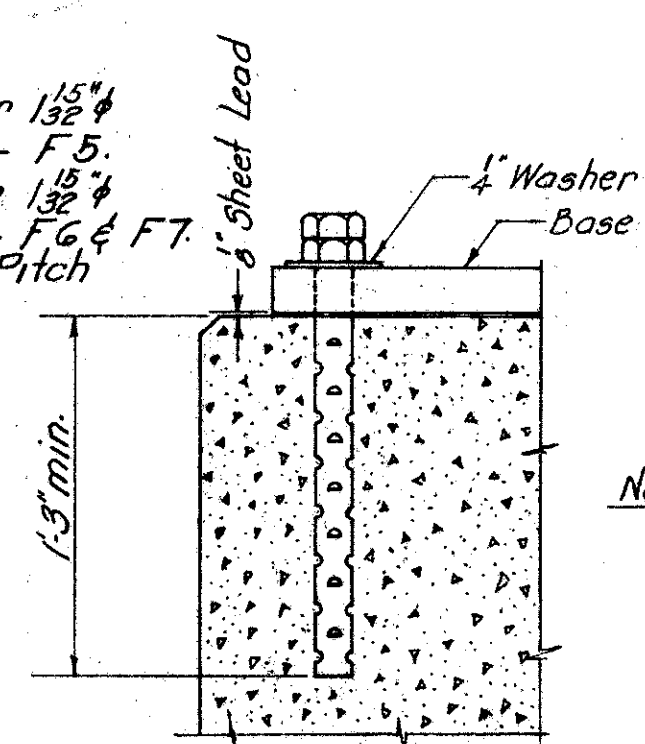
PINTLE DETAIL
SHOES E1-E10
Half Scale



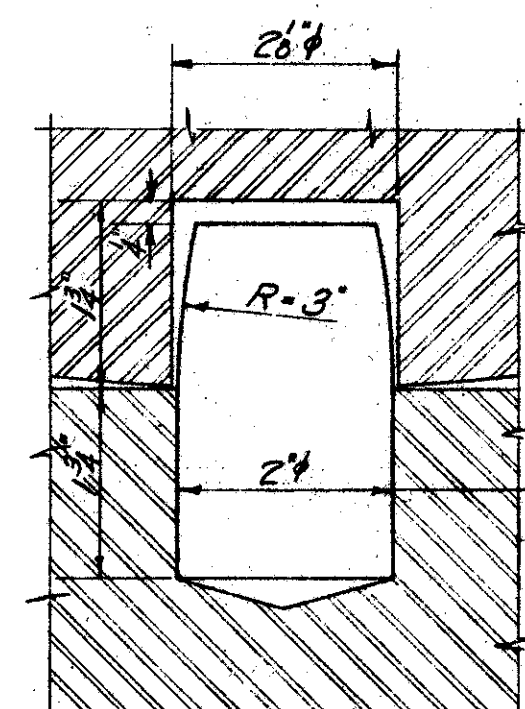
SECTION A-A
3'-1'-0"



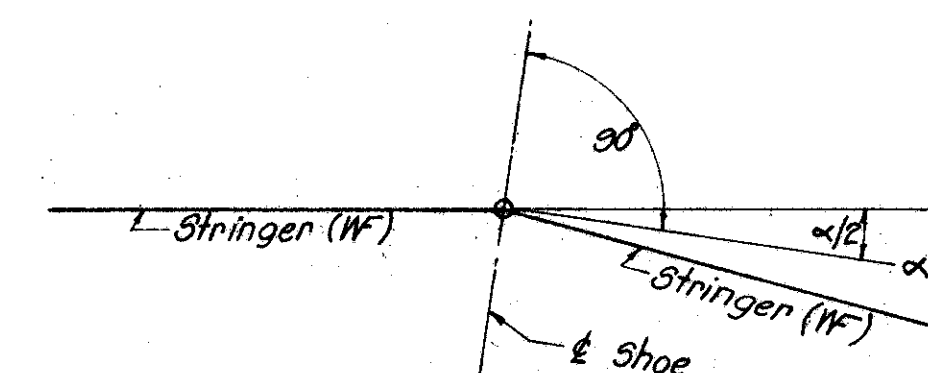
DETAIL "D"
3'-1'-0"



ANCHOR BOLT DETAIL



PINTLE DETAIL
SHOES E11-E15
Half Scale



SETTING OF SHOES AT
POINT OF CHANGE OF DIRECTION
IN ROLLED BEAM SPANS

Mk.	No. Reqd.	dimension - (in inches)												
		A	B	C	D	F	G	H	K	L	M	R	T	Y
E3	4	3	11	3	2	1/2	3	12 1/2	10 1/2	26	18	7 1/2	1 1/2	1 1/2
E8	4	3	14	3 1/2	2 1/2	3	9	15 1/2	12	28	20	3 1/2	2	1 1/2
E6	1	3	16	3 1/2	2 1/2	3	9	16 3/8	12	29	21	10 1/2	2 1/2	1 1/2
E7	1	3	17	3 1/2	2 1/2	3	9	16 3/8	13	30	22	11	2 1/2	1 1/2
E9	8	3 1/2	20	3 1/2	3 1/2	3	12	19 1/2	14	33	25	12 1/2	3	1 1/2
E10	5	3 1/2	21	3 1/2	3 1/2	3	12	19 1/2	14	34	26	13	3	1 1/2

Mk.	No. Reqd.	Dimension - (in inches)												
		B	G	H	L	M	R	T	C	K	D	Y		
E11	4	22	14	26 1/2	31	22	17	3 1/2	6	14	15	1 1/2		
E12	2	22	14	31 1/2	41	32	19	3 1/2	9	20	21	2		
E13	15	25	16	32	38	29	19	4	9	20	21	2		
E14	14	22	14	26 1/2	36	27	17	3 1/2	6	20	15	1 1/2		
E15	4	22	14	26 1/2	32	23	17	3 1/2	6	14	15	1 1/2		
F5	4	19	-	24	29	-	-	2	6	14	15	1 1/2		
F6	13	21	-	24	32	-	-	2	9	20	21	2		
F7	8	24	-	27	34	-	-	2 1/2	9	20	21	2		

Note: Pods on all piers and abutments shall be poured integrally with pier caps and abutment bridge seats.

NOTES: Shoes E1 thru E10, F1 thru F3, and base plates of shoes E12, E14 & E15 shall be structural steel, Sec. M-7.4.
Upper and lower castings of shoes E12, E14, E15, F5 thru F7, and upper casting of shoes E11 & E13 shall be steel castings, Sec. M-7.7.
Rocker casting of shoes E11 & E13 shall be high strength steel casting A.S.T.M. A148, Grade 80-50.
Base plate of shoes E11 & E13 shall be a steel forging conforming to A.S.T.M. A237-55, Grade 80-55 class B.

All pins, nuts, washers, rings and pintles shall be structural steel.
Bolts to girder flanges shall have hex heads and self locking nuts.
Provide washers under heads and nuts.

Lower portions of shoes shall be centered in both directions under top portion for a temperature of 60°F.

All base plates, rockers and sole plates shall be scribed with centerlines in both directions.

All fillets on castings shall be 3/4" unless otherwise noted.

Spaces around anchor bolts in base plates shall be filled with an approved metallic filler before setting nuts.

In certain instances, cross frames & lateral gusset plates may interfere with the proper placement of anchor bolts for shoes. In such instances the contractor shall place the shoe anchor bolts prior to the erection of diaphragms or other steel members which may cause interference.

For location of shoe types see framing plans.

Mk.	No. Reqd.	dimension - (in inches)												
		A	B	C	D	F	G	H	K	L	M	R	T	Y
E1	4	2 1/2	8	2 1/2	1 1/2	1/2	7	9 1/2	9	24	16	5 1/2	1 1/2	1 1/2
E2	12	2 1/2	10	2 1/2	2	1/2	7 1/2	10 1/2	9	25	17	6 1/2	1 1/2	1 1/2
E4	1	3	12	3	2 1/2	1/2	8 1/2	13 1/2	11 1/2	27	19	8 1/2	1 1/2	1 1/2
E5	8	3	14	3 1/2	2 1/2	1/2	9	15 1/2	12	28	20	9 1/2	2	1 1/2
E6	18	3	16	3 1/2	2 1/2	1/2	9	16 3/8	12	29	21	10 1/2	2 1/2	1 1/2
E7	34	3	17	3 1/2	2 1/2	1/2	9	16 3/8	13	30	22	11	2 1/2	1 1/2
F1	2	3	14	3 1/2				15 1/2	12	23		9 1/2	2	1 1/2
F2	2	3	16	3 1/2				16 3/8	12	24		10 1/2	2 1/2	1 1/2
F3	11	3	17	3 1/2				16 3/8	13	25		11	2 1/2	1 1/2

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

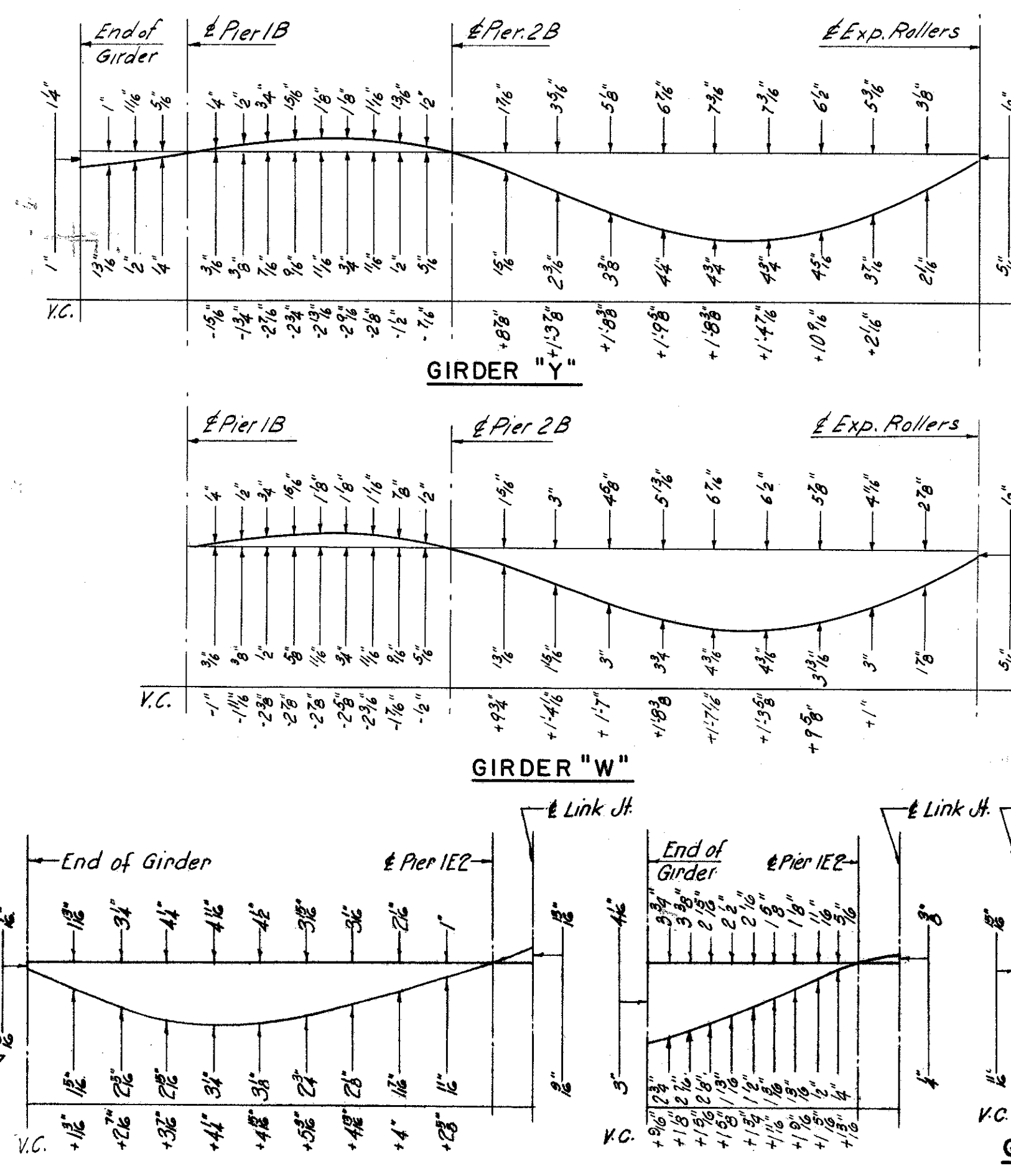
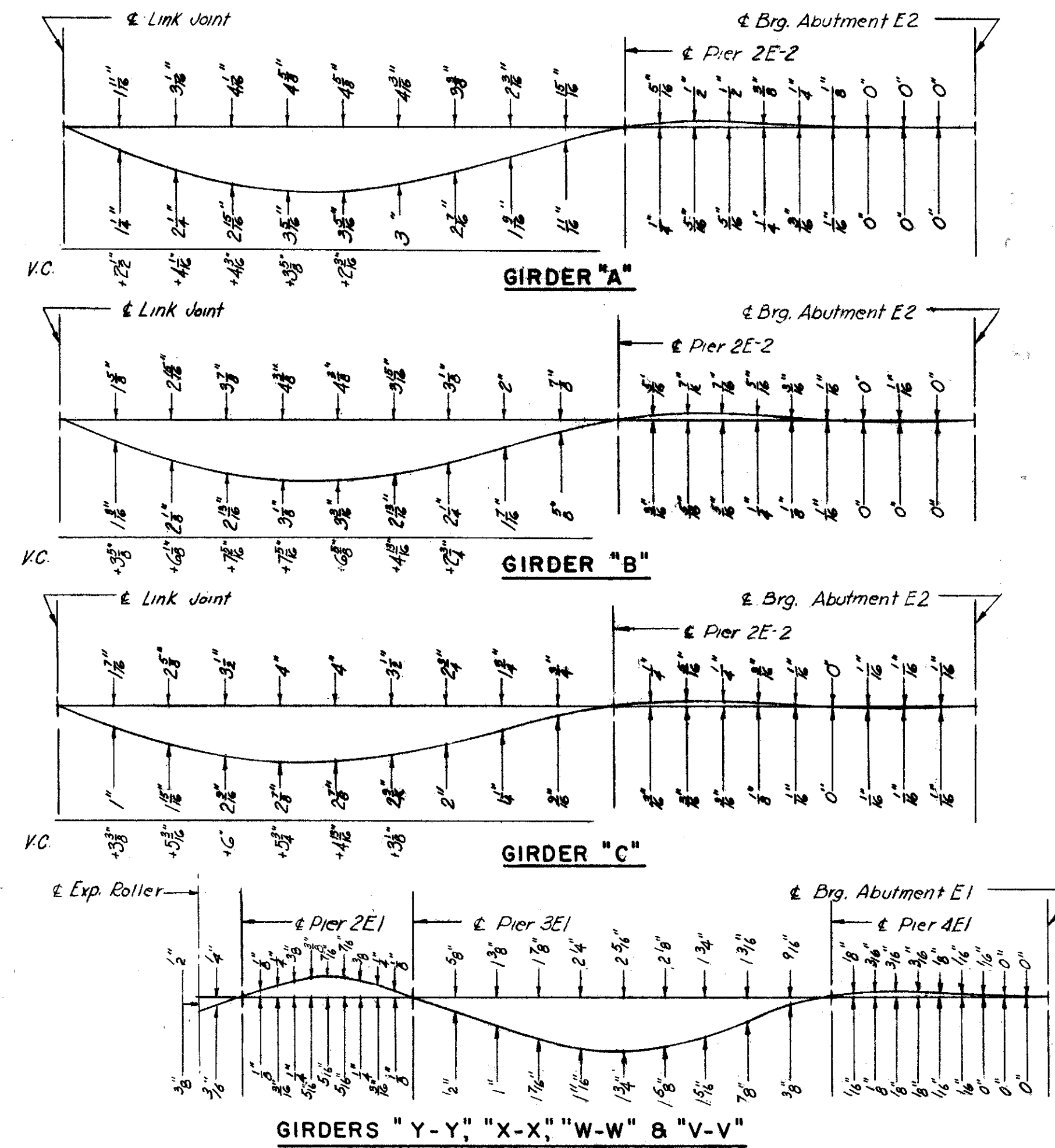
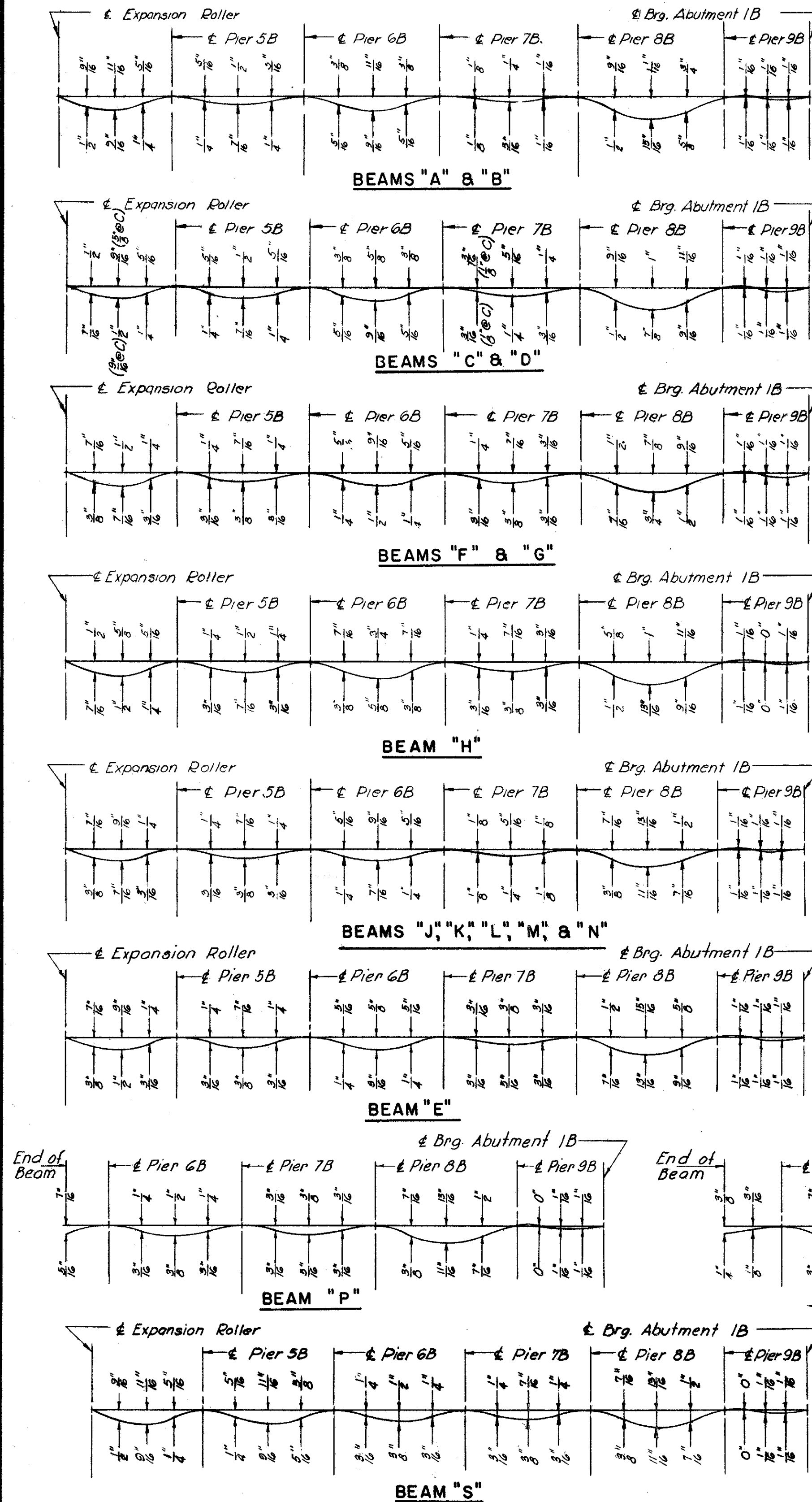
SHOES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0" Unless Noted
MADE IN U.S.A. DATE 2-17-57
TRCD 11-R-5 DATE 2-17-57
CRD B-1 DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-89

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



V.C. Corrections not required

Mk	1	2	3	4
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	0	0
E	0	0	0	0
F	0	0	0	0
G	0	0	0	0
H	0	0	0	0
I	0	0	0	0
J	0	0	0	0
K	0	0	0	0
L	0	0	0	0
M	0	0	0	0
N	0	0	0	0
O	0	0	0	0
P	0	0	0	0
Q	0	0	0	0
R	0	0	0	0
S	0	0	0	0

Note:
In setting screeds for the concrete deck, the deflections in the box girder at the East End Pier should be anticipated. See Sh. 87

TABLE OF DEFLECTIONS AND V.C. CORRECTIONS - GIRDERS "D" THRU "R"

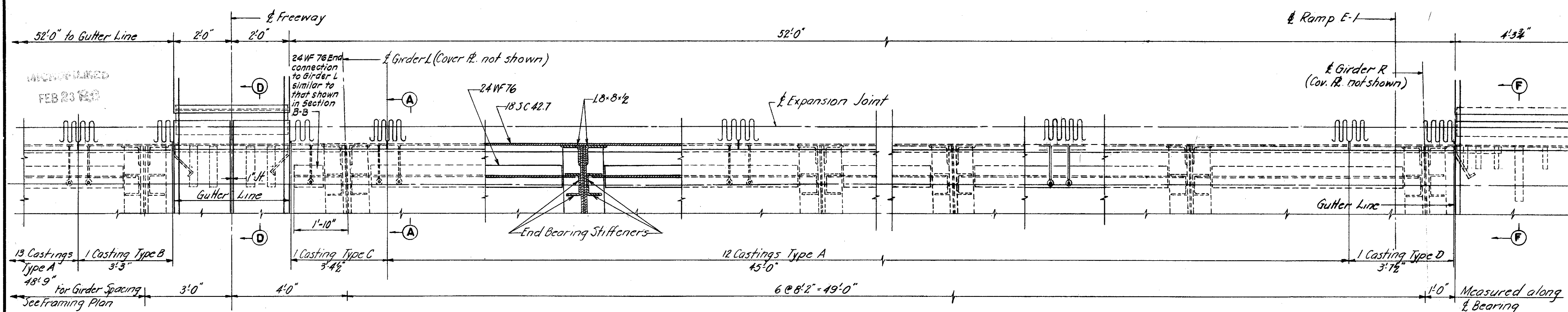
GIRDER	TYPE	Span 1 (Pier 5B to 6B)										Span 2 (Pier 6B to 7B)										Span 3 (Pier 7B to 8B)										Span 4 (Pier 8B to 9B)																			
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10										
D	CO
	VC

NOTES: (CONTINUED)
All girders shall be cambered for total dead load deflection and vertical curvature correction. At any particular point, if no figure is shown or tabulated for vertical curvature correction, correction is equal to zero.
The rolled beams (Unit 2) shall be cambered for total dead load deflection and vertical curvature, when this total exceeds 3/4". At any point, if no figure is shown or tabulated for vertical curvature correction, correction is equal to zero. However, where rolled beams need not be cambered (total camber less than 3/4") any mill tolerance deviation from straightness shall be turned opposite to the direction indicated by the deflection diagram.

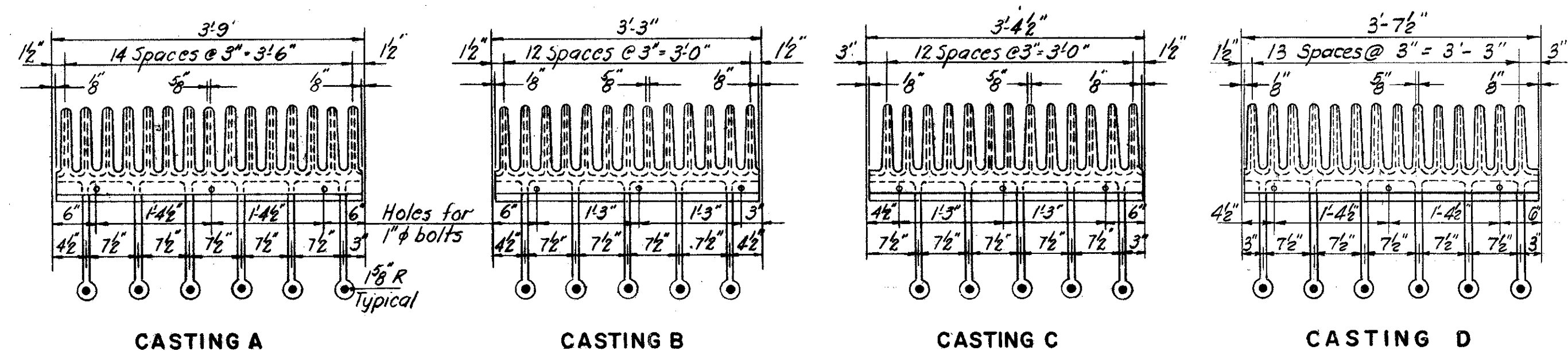
NOTES:
The deck is to be constructed so as to assume its normal outline under full Dead Load. (see General Notes, Sh. 36)
Base Lines from which Dead Load Deflections are measured are chords connecting points of support (including Link Joint, Expansion Rollers and Ends of Girders and Rolled Beams at diaphragms) back of top flange angles of Girder or Rolled Beam Basic Section.
Girder deflections and V.C. corrections are shown or tabulated at tenth points of spans unless otherwise shown. Rolled Beam deflections and V.C. corrections are shown or tabulated at quarter points of spans unless otherwise shown.
Unless tabulated, amount of total dead load deflection is shown above diagram; amount of dead load deflection due to concrete only is shown below diagram.
V.C. indicates correction due to vertical curvature.
Where girder deflections are tabulated T.D.L. indicates total dead load deflection; C.O. indicates dead load deflection due to concrete only.
Plus (+) V.C. correction indicates upward camber.
Minus (-) V.C. correction indicates downward camber.
Camber for dead load shall be in opposite direction to that shown in deflection diagrams.
For Deflection Diagrams of girders "X" and "Y" See Sh. 78A

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
DEFLECTION DIAGRAMS
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: No Scale
MADE J.R.L. DATE 1-30-57
TRCD H.G. DATE 2-21-57
CKD W.B.L. DATE 2-23-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-90

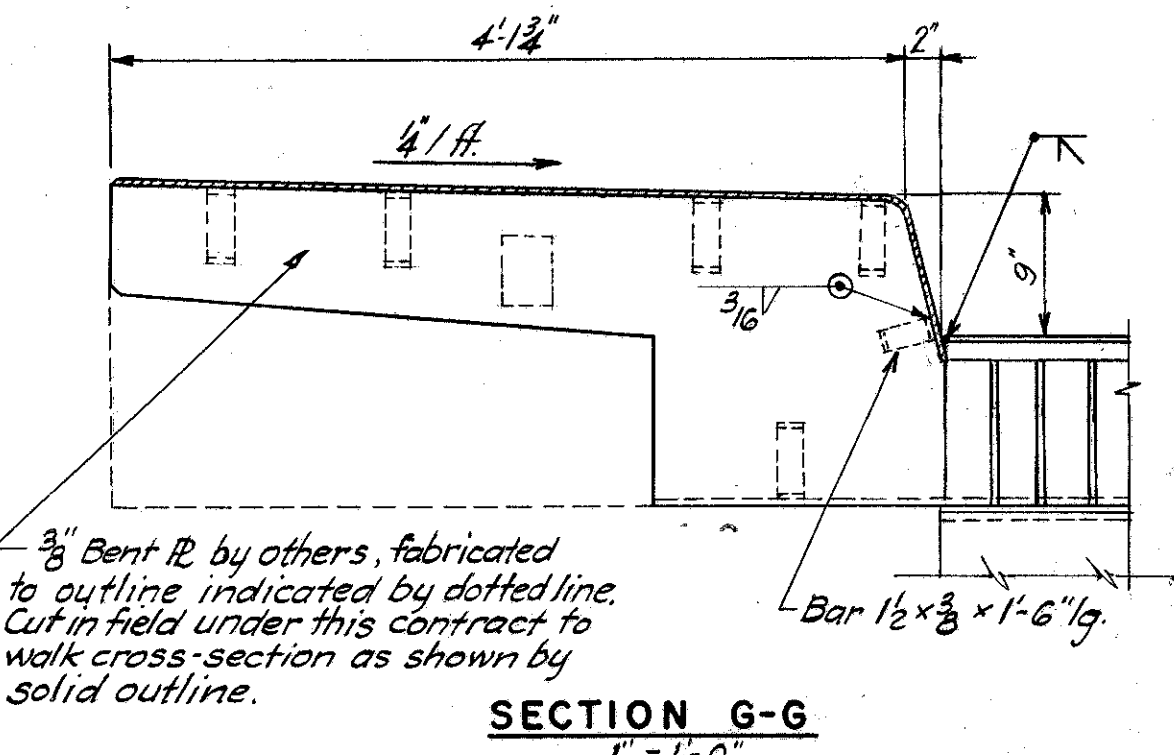
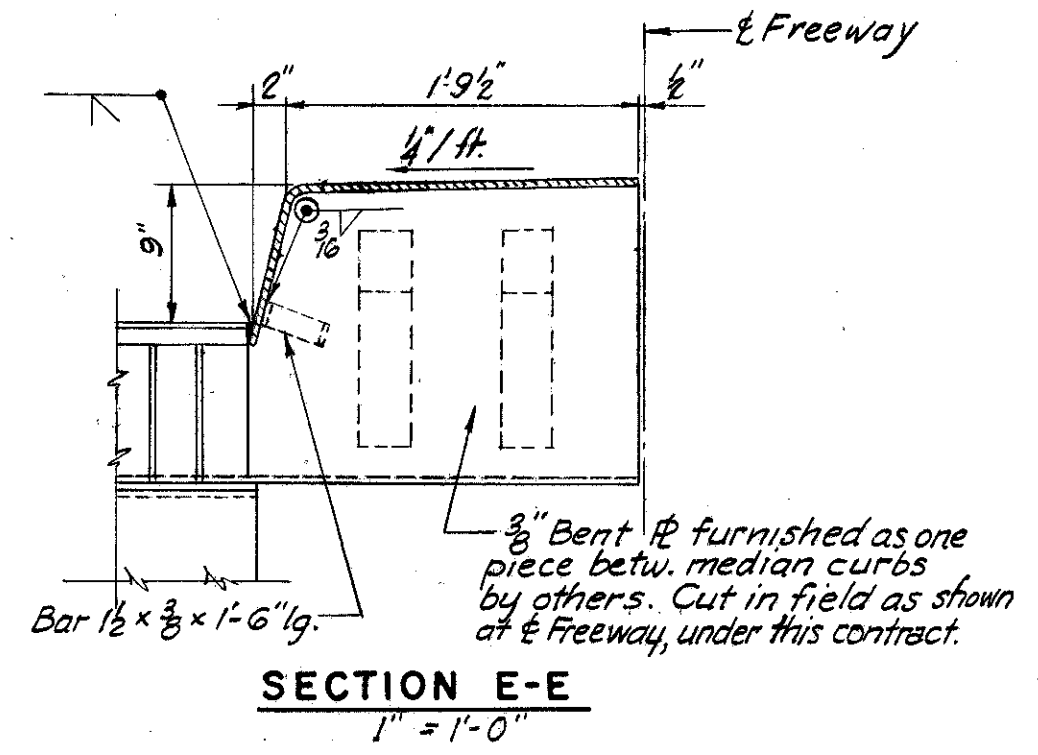
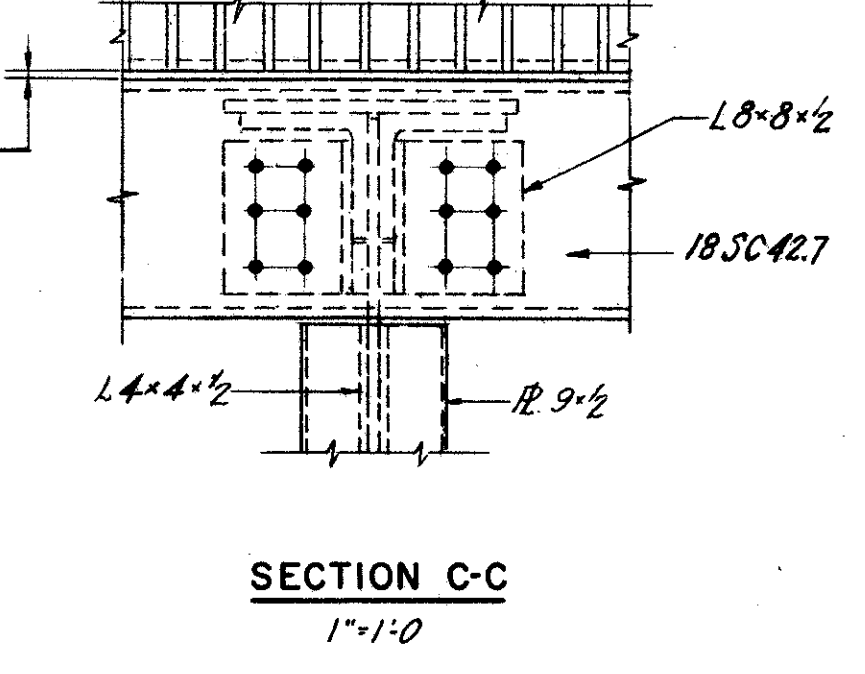
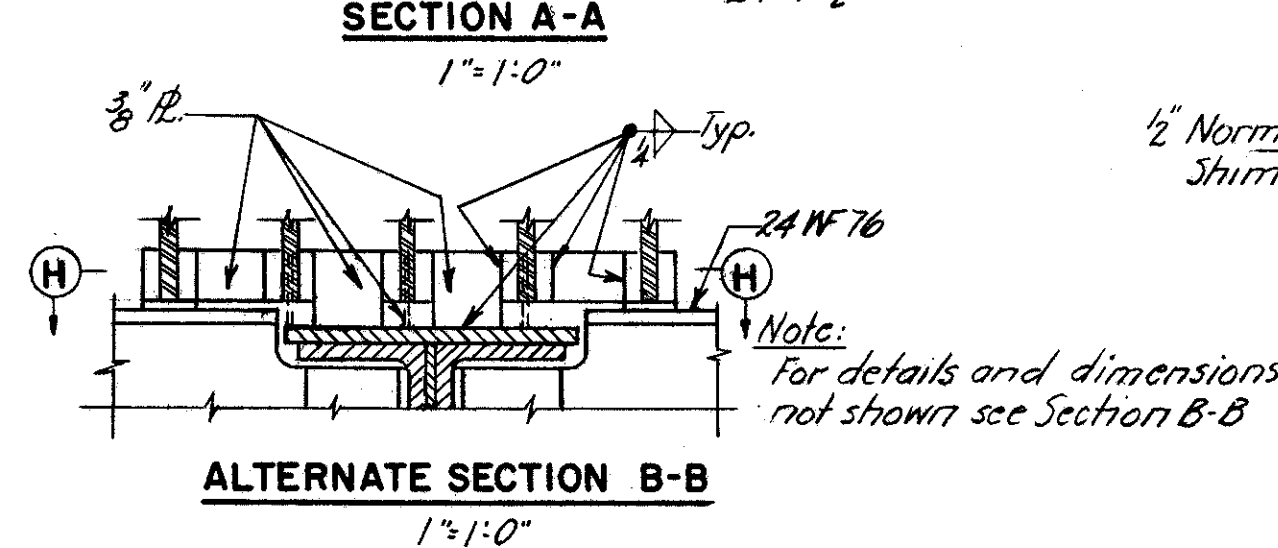
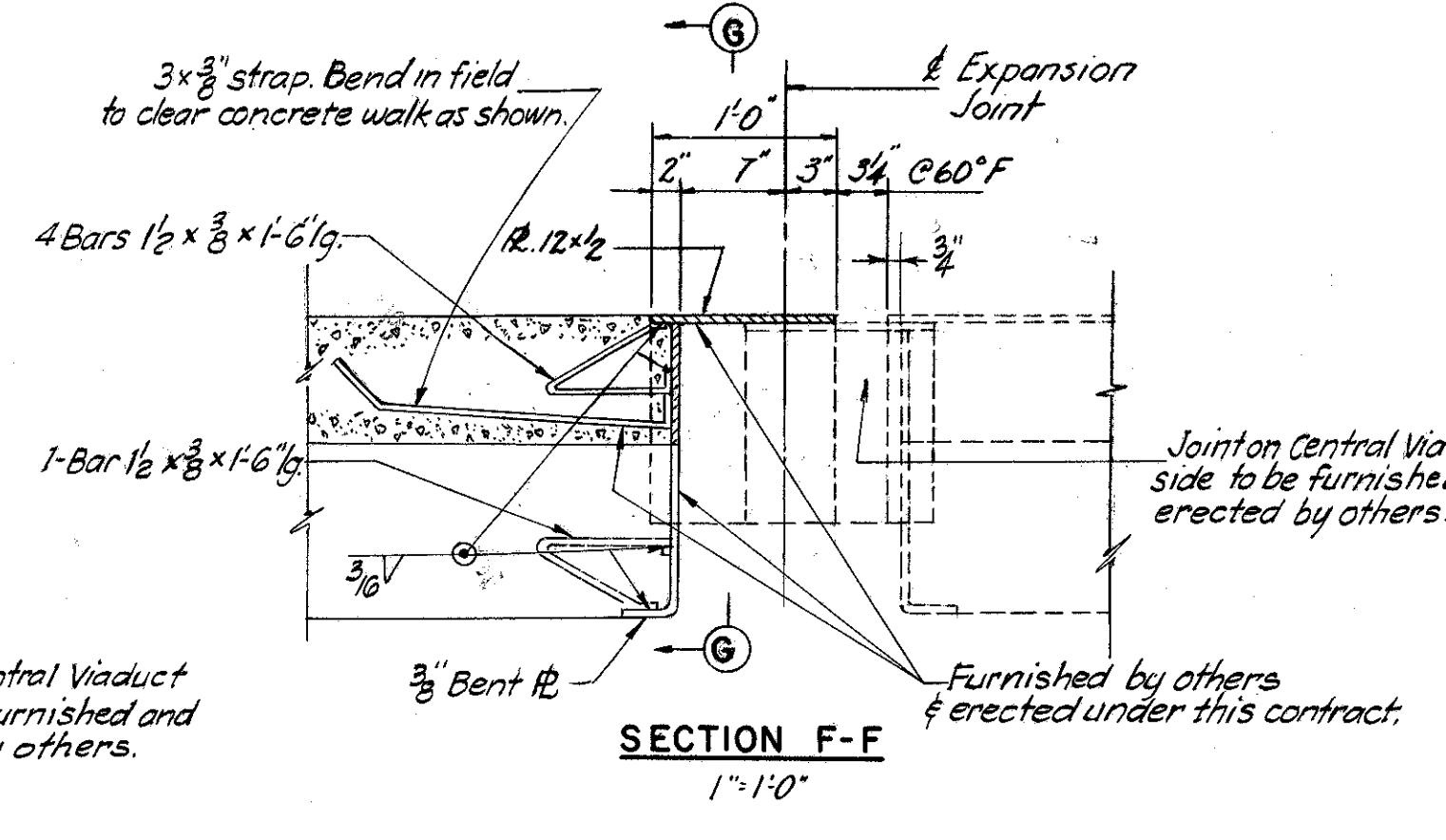
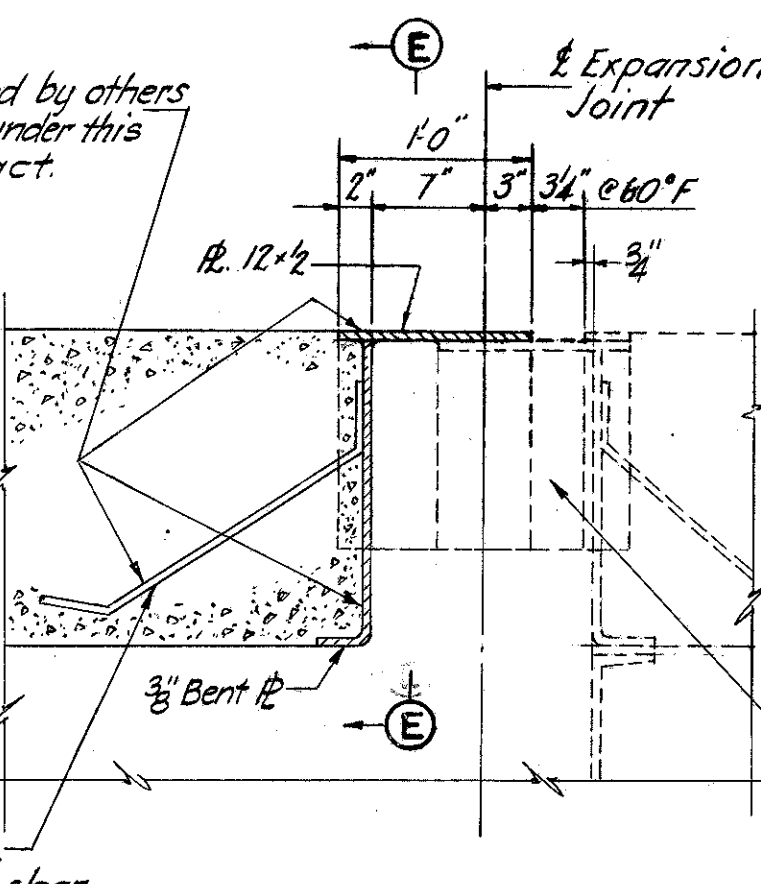
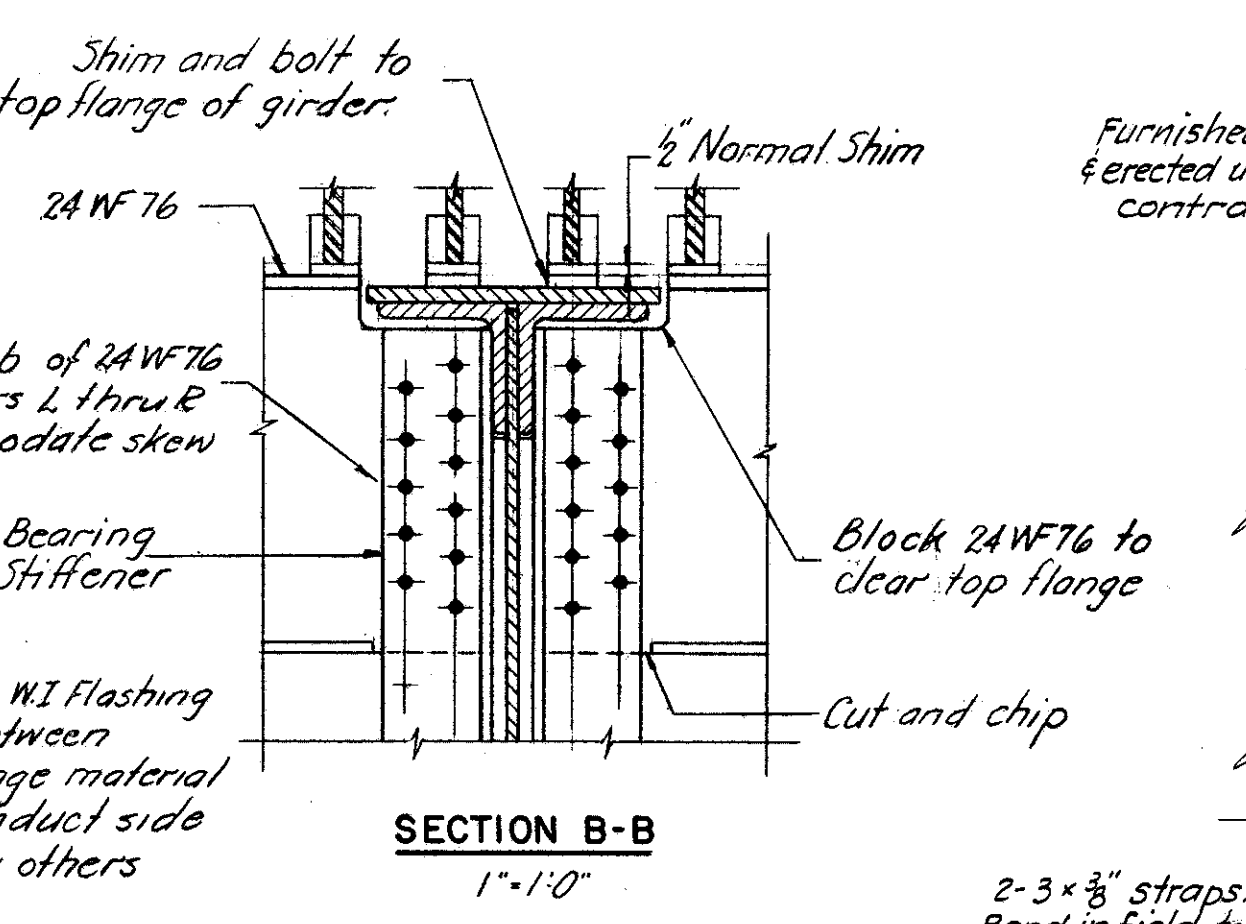
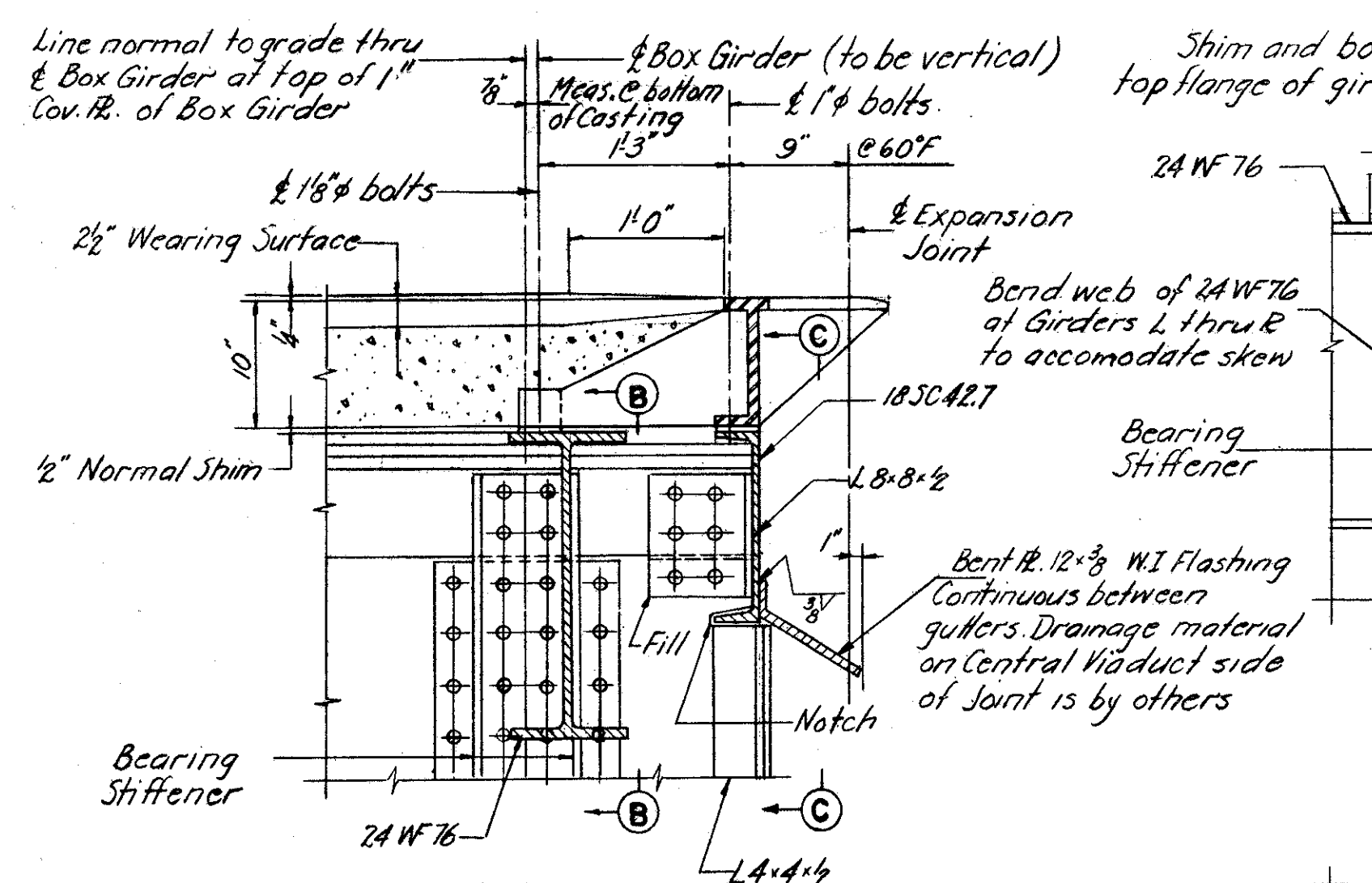
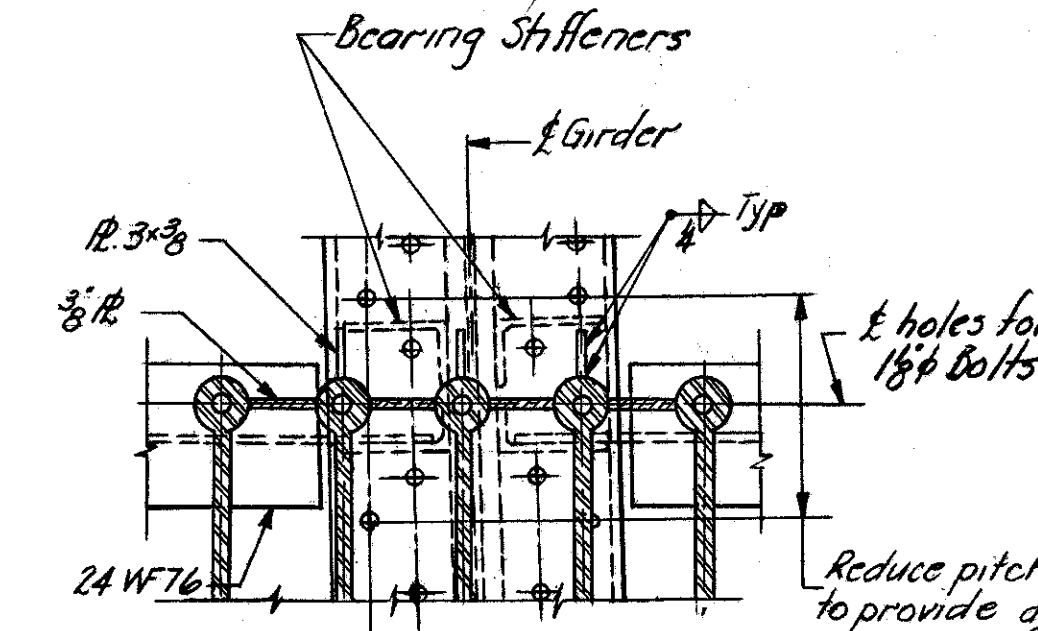
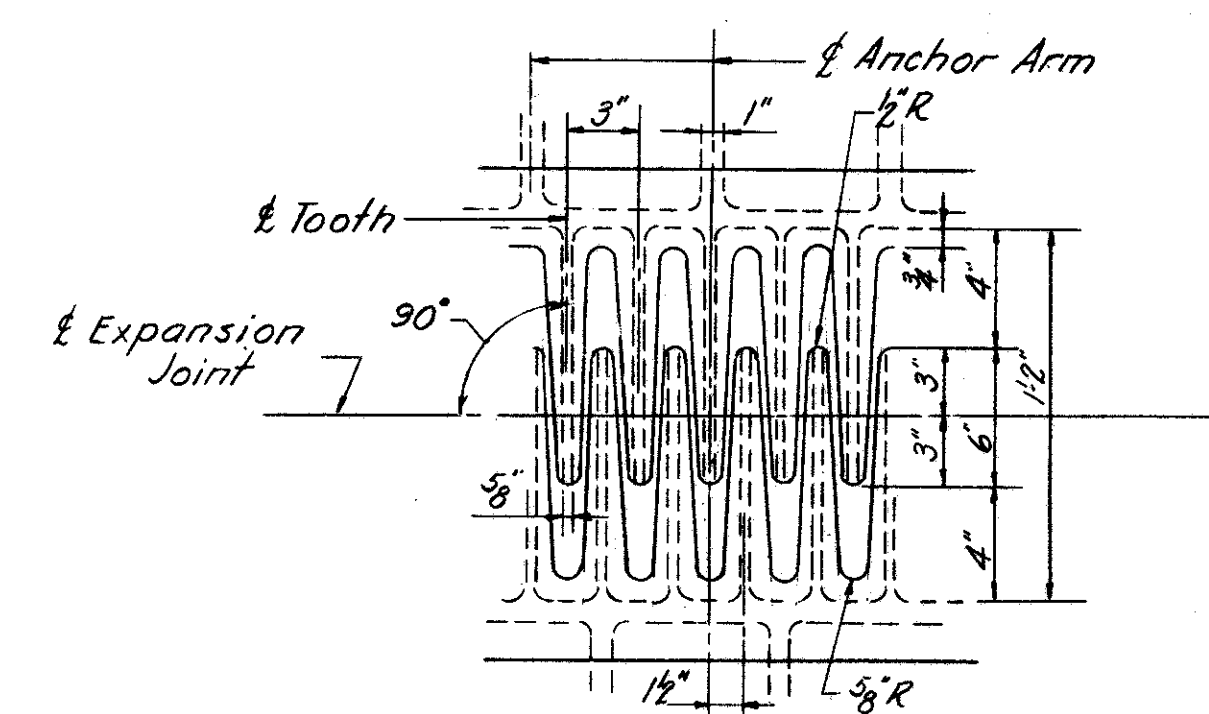
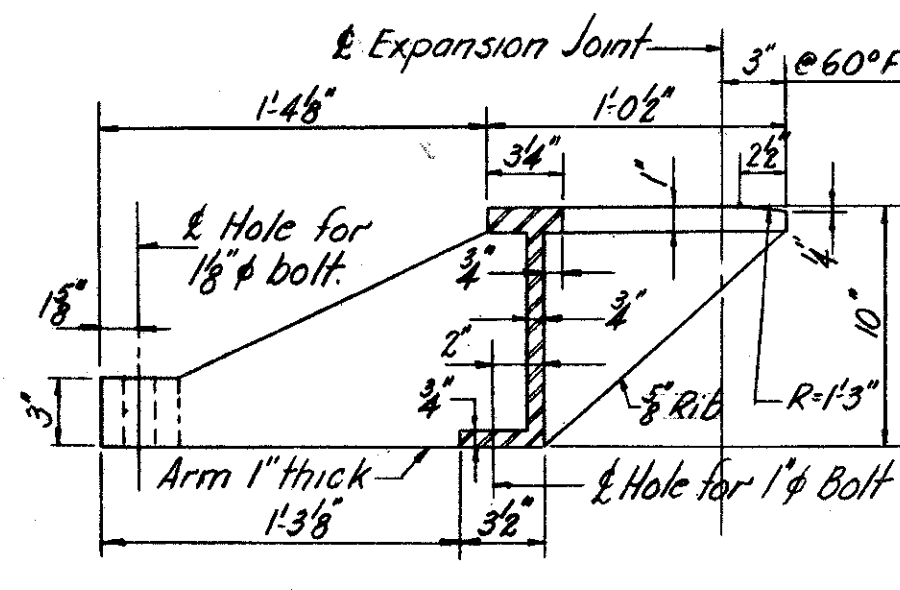
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



HALF PLAN OF EXPANSION JOINT AT EAST END PIER
1/2" = 1'-0"



EXPANSION CASTINGS
3/4" = 1'-0"



NOTES:
Joint castings shall be adjusted to match castings on Central Viaduct side of joint after concrete roadway slabs have been placed on Approach spans. See "Slab Pouring Sequence," Sh. 102.
Bolt holes in castings shall be drilled or reamed.
Top of expansion casting shall be set 4" below roadway grade elevations.
For details at box girder see Sh. 88.
All castings to be furnished by others. Castings for Central Viaduct to be erected by others while Castings for East Approach Viaduct are to be erected under this contract.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

EXPANSION JOINT AT EAST END PIER

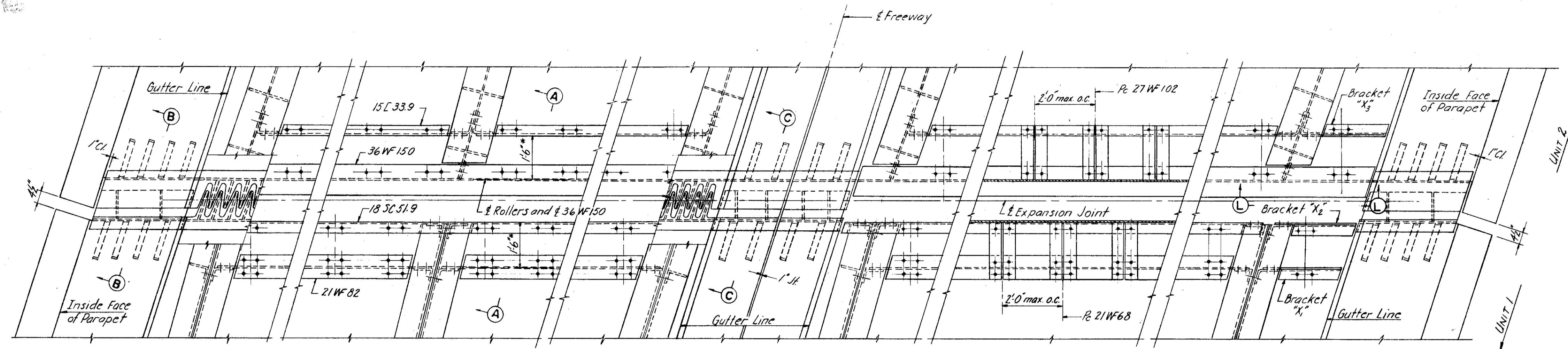
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As noted
MADE S.H.E. DATE 11-27-54
TRCD H.G. DATE 2-21-57
CKD H.L.P.S. DATE 12-2-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-91

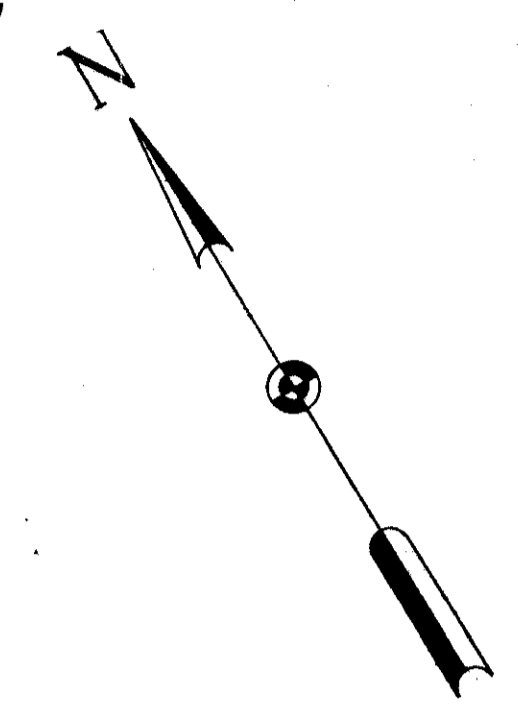
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



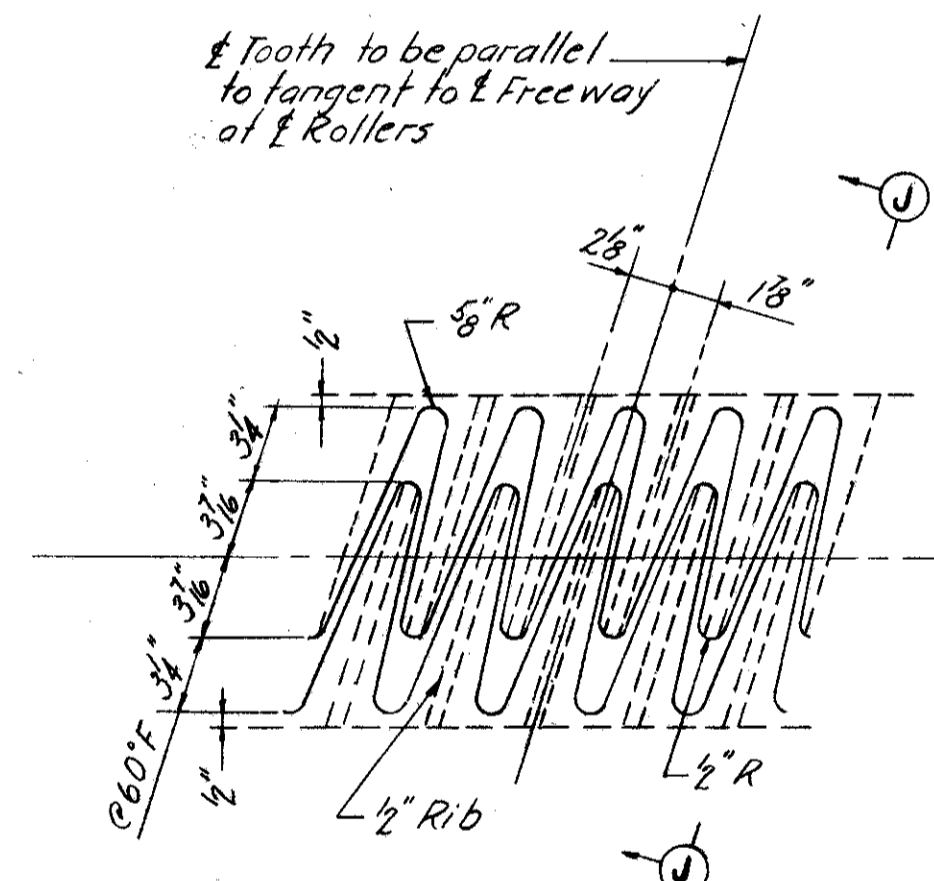
* Measured parallel to grade along flange of P.F.

PLAN-EXPANSION JOINT AT MAIN LINE ROLLERS
2"=1'-0"



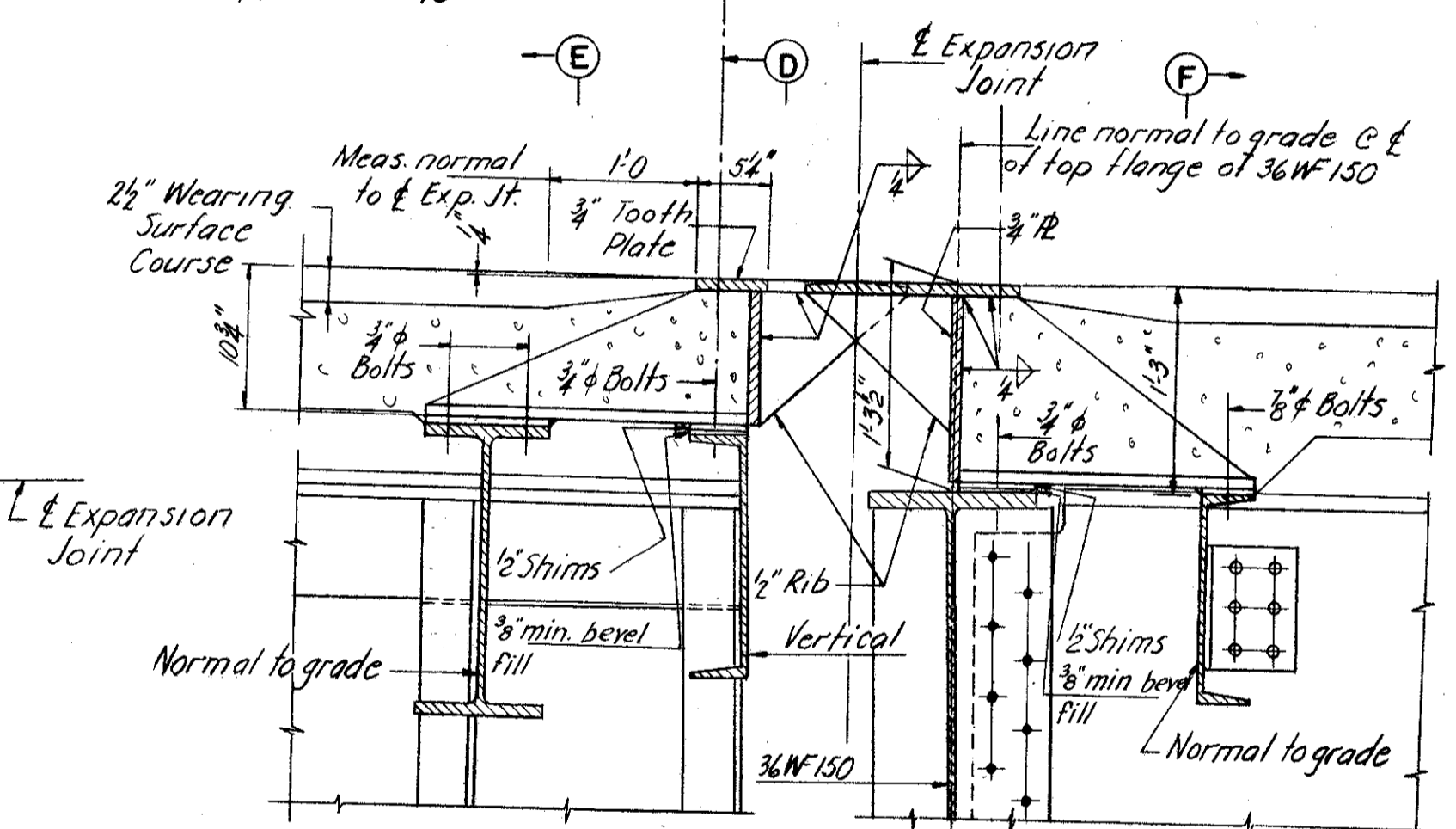
1/8" holes to be used for field reaming of bolt holes. Concrete to be thoroughly rammed into place until it appears in 1/8" holes

1/2" Tooth to be parallel to tangent to E. Freeway at E. Rollers



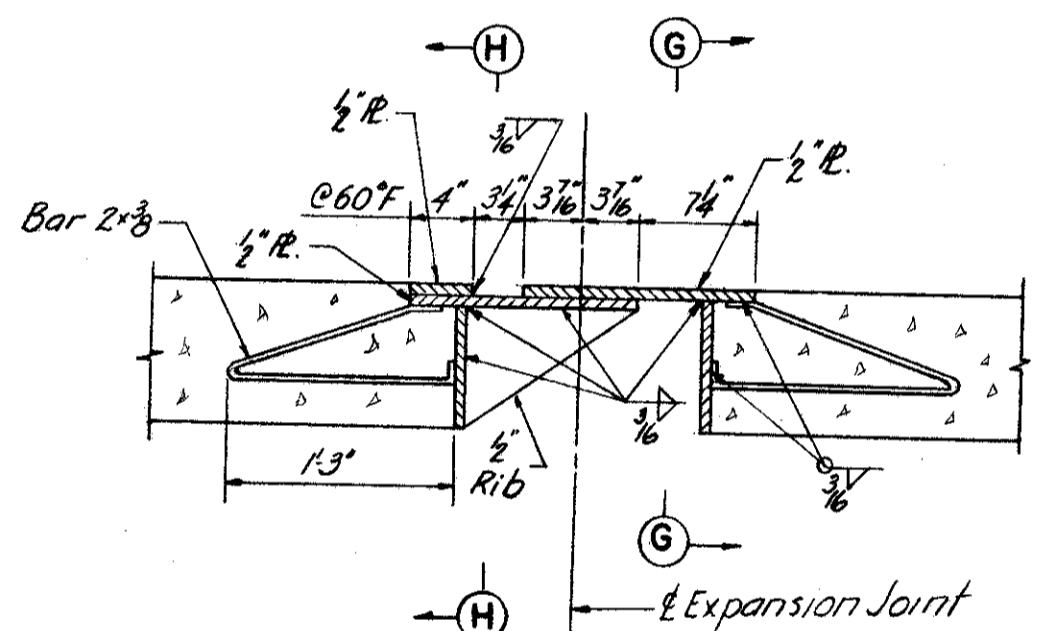
EXPANSION PLATE DETAIL
1/2"=1'-0"

Section J-J similar to Section G-G Str. 92



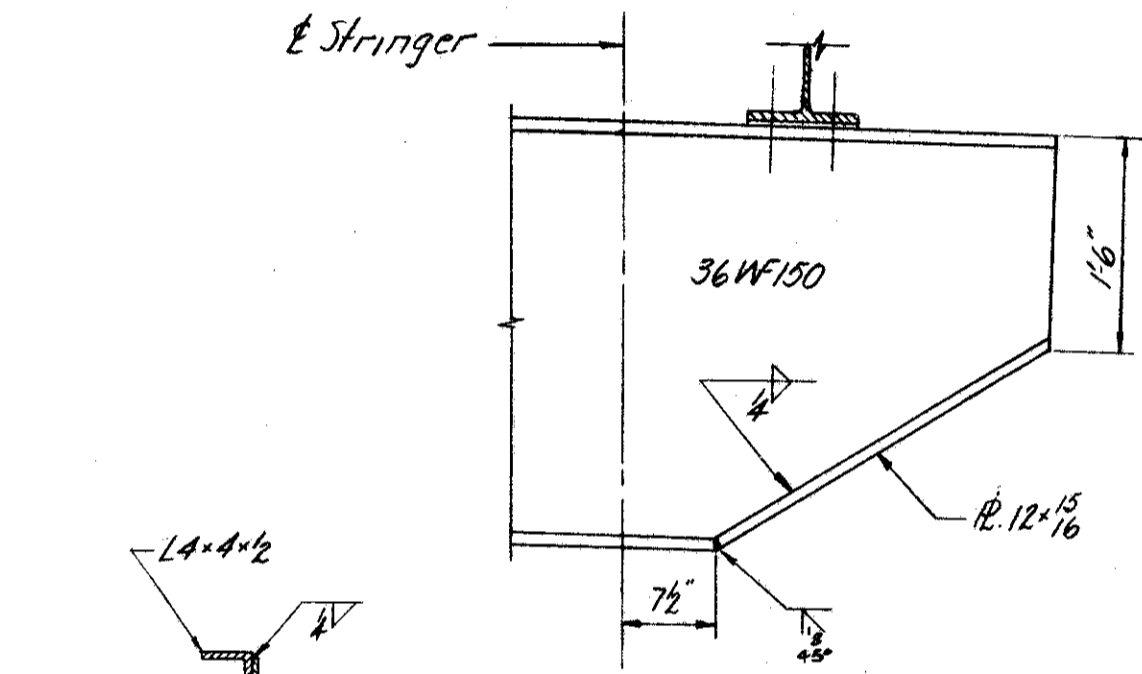
SECTION A-A
1"=1'-0"

For additional details at Rollers see Str. 86

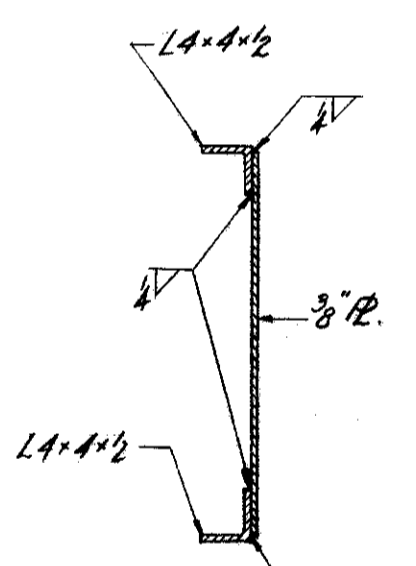


SECTION B-B
1"=1'-0"

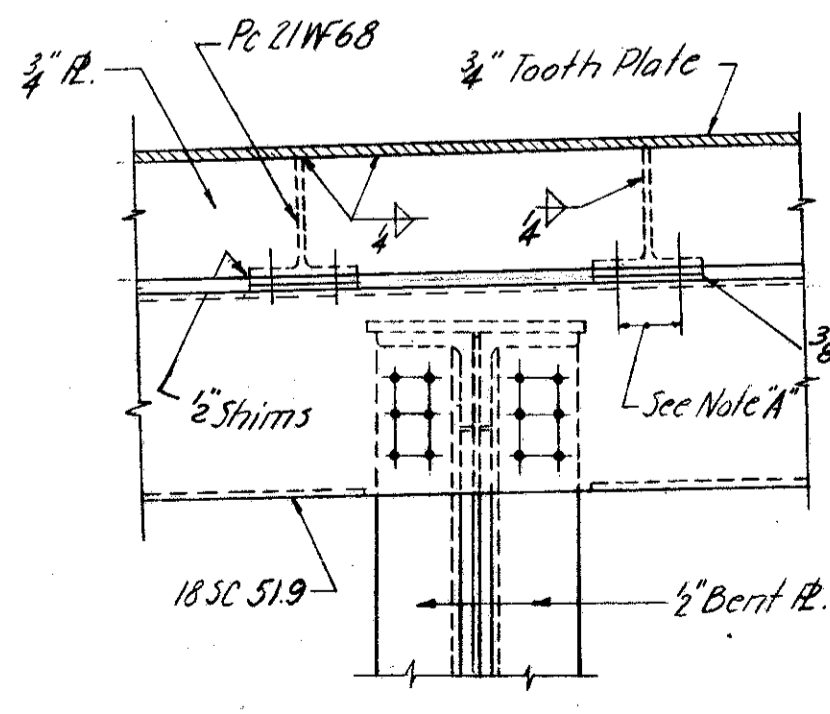
Section G-G similar to Section B-B
Sections G-G and H-H similar to Sections E-E and F-F, respectively Str. 92



SECTION L-L
3/4"=1'-0"

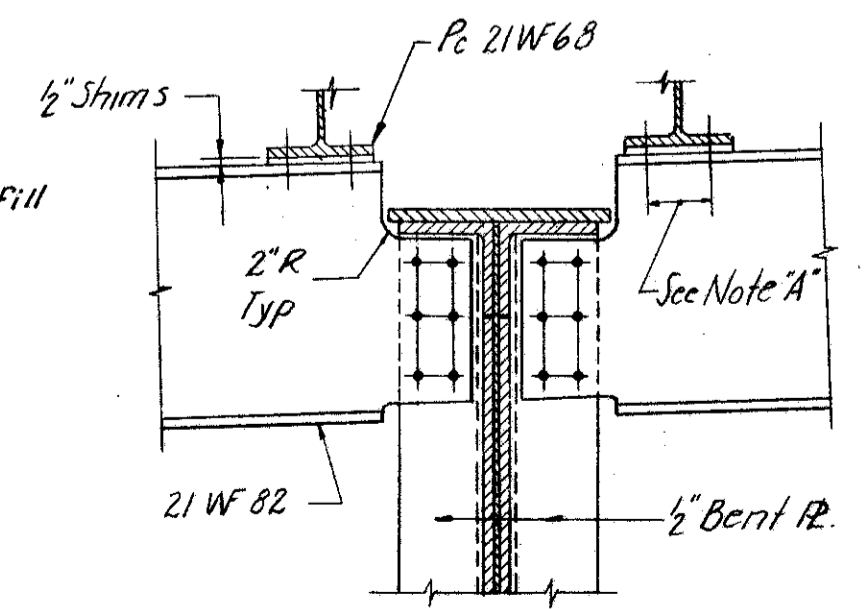


SECTION K-K
3/4"=1'-0"

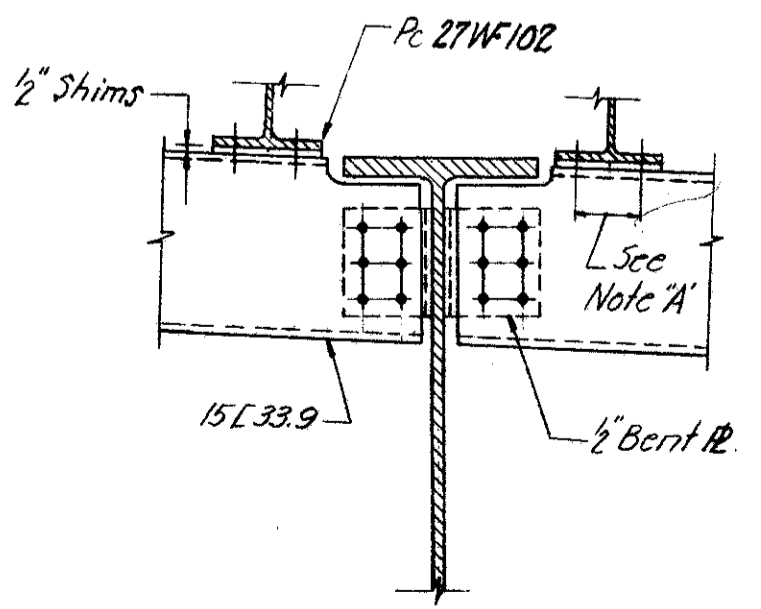


SECTION D-D
3/4"=1'-0"

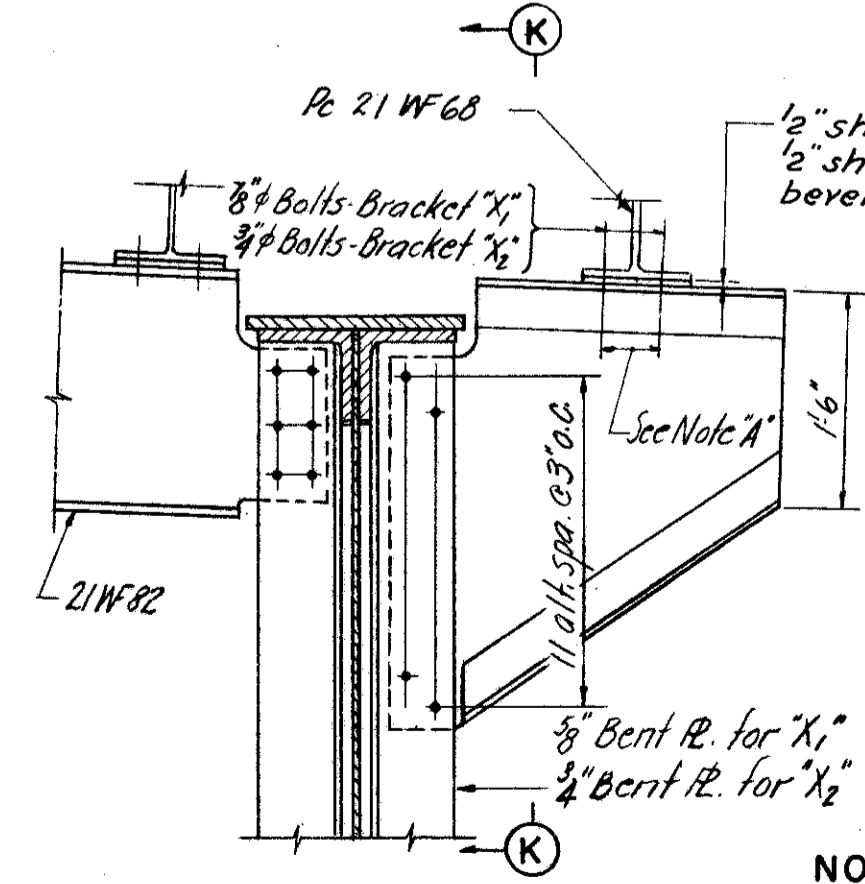
1/2" Ribs (not shown) to be set normal to 3/4" Tooth Plate.



SECTION E-E
3/4"=1'-0"

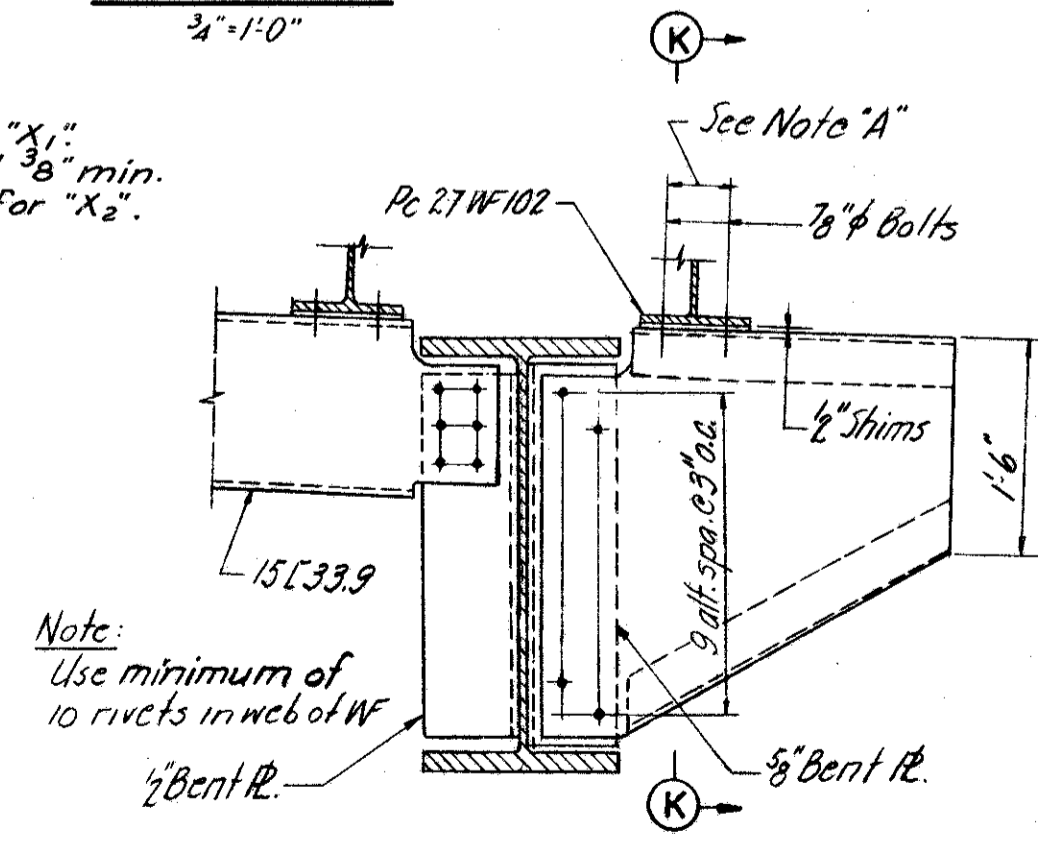


SECTION F-F
3/4"=1'-0"



BRACKETS "X1" AND "X2"
3/4"=1'-0"

Bracket "X1" shown Bracket "X2" similar except as noted



BRACKET "X3"
3/4"=1'-0"

NOTE "A"

Subpunch bolt holes 1/4" smaller than required
Ream in field to required diameter.

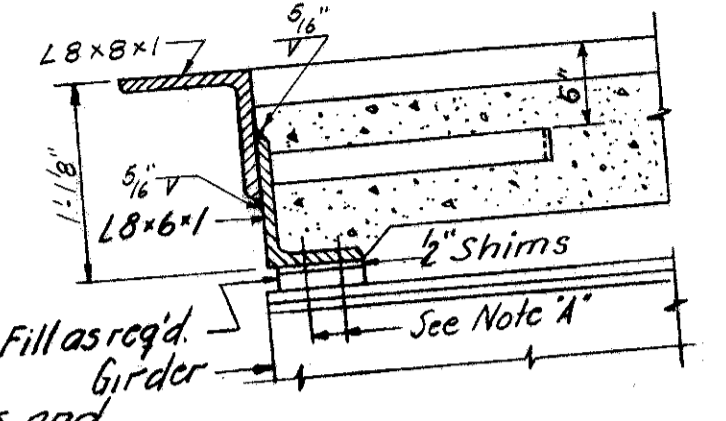
Note:
Use minimum of 10 rivets in web of WF
1/2" bent R.

NOTES:

Normal Temperature is 60°F.
Temperature range for movement is from 105°F to -25°F.
For location of Joints and for Stringer spacing, see Framing Plans.
Parapet openings of Expansion Joints over piers to be normal to grade; over abutments to be vertical.

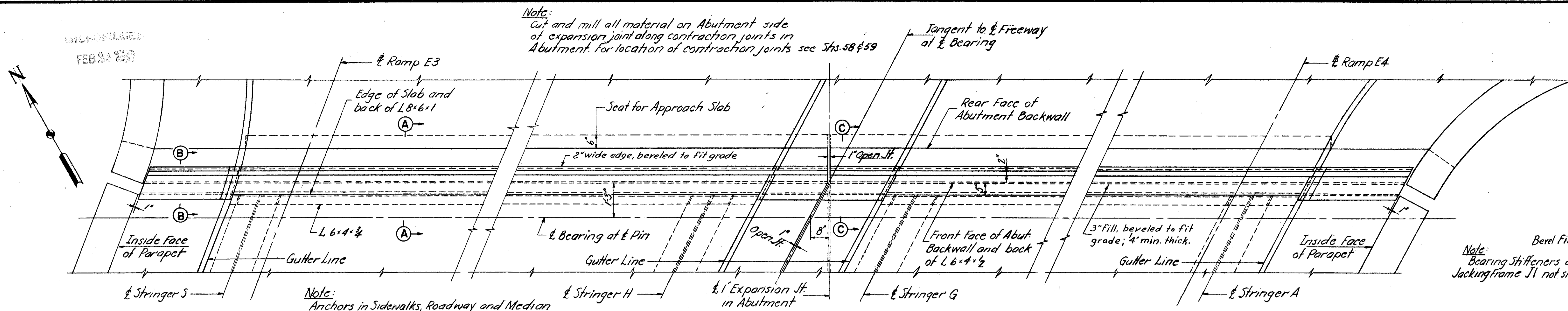
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
EXPANSION JOINT
MAIN LINE ROLLERS
CLEVELAND CUYAHOGA COUNTY OHIO

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



SECTION J-J
1"=1'-0"

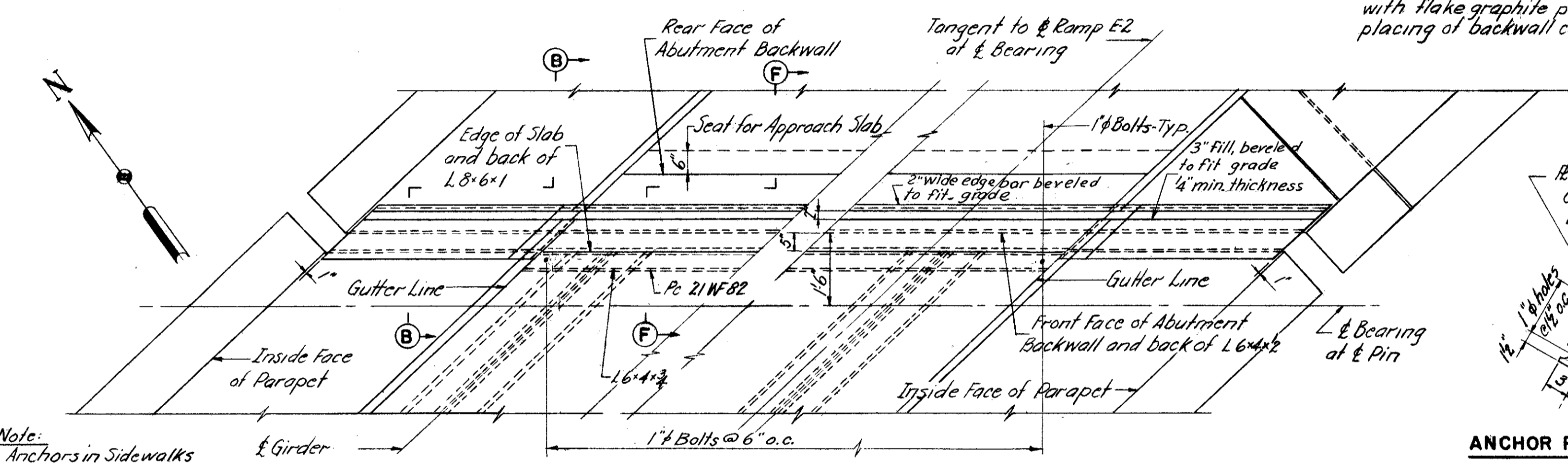
Details and dimensions not shown same as in Section A-A



PLAN-EXPANSION JOINT AT ABUTMENT I B
1/2"=1'-0"

Note: Anchors in Sidewalks, Roadway and Median not shown See Sections A-A, B-B and C-C.

Note: Cut and mill all material on Abutment side of expansion joint along contraction joints in Abutment. For location of contraction joints see Shs. 58 & 59

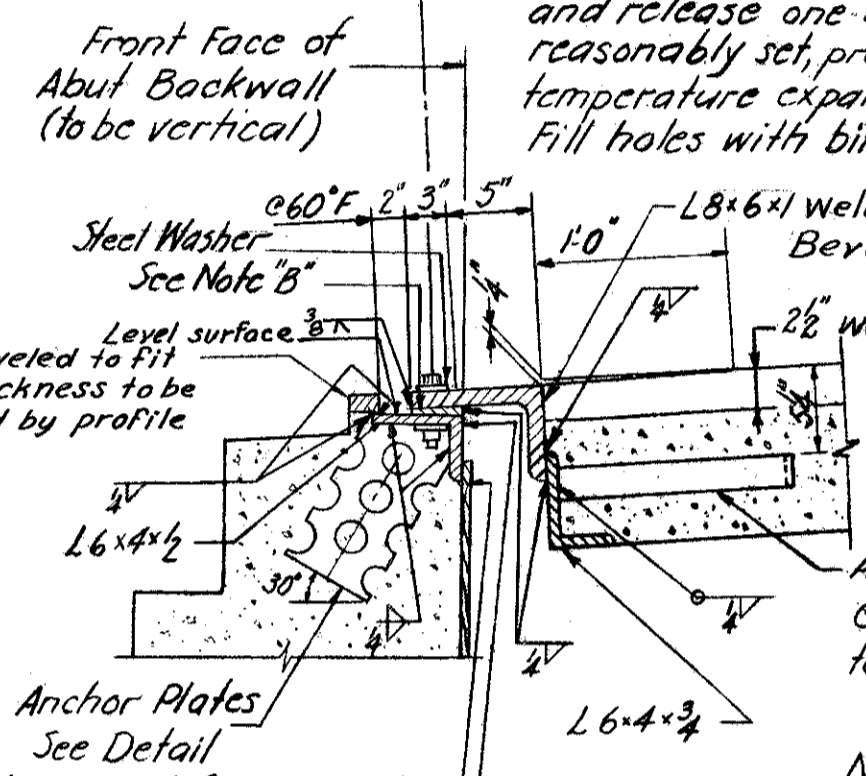


PLAN-EXPANSION JOINT AT ABUTMENT E-2
1/2"=1'-0"

Note: Anchors in Sidewalks and Roadway not shown. See Sections B-B and F-F.

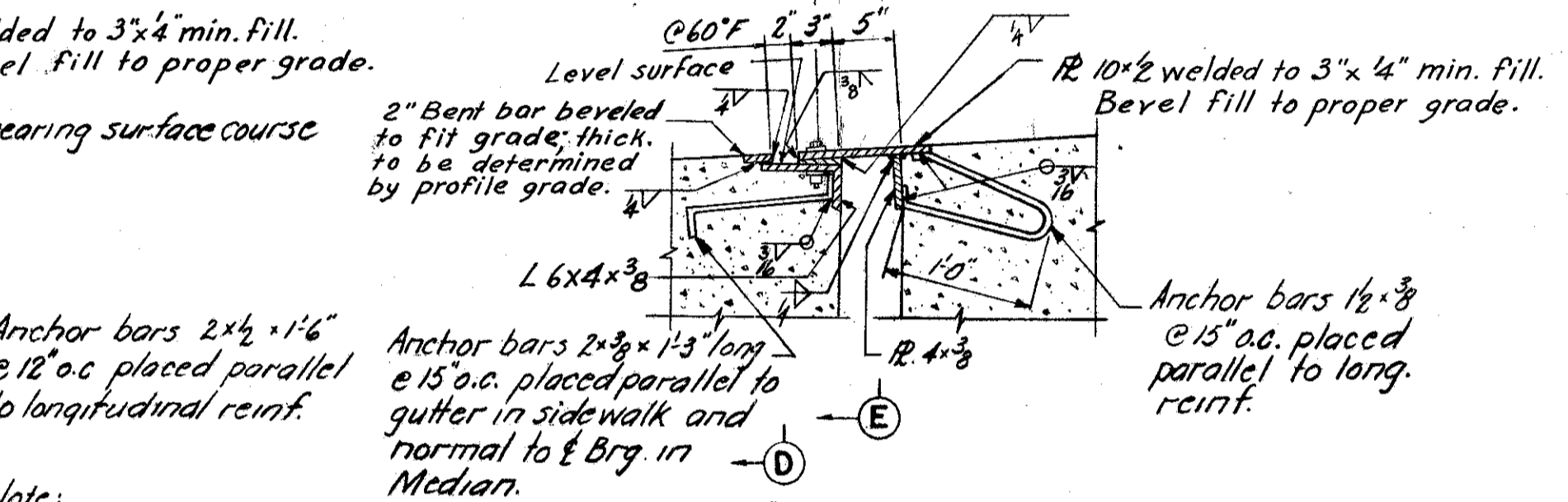
Note "B"
This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.

5/8" x 2" bolts at not more than 2'0" o.c., with nuts tack-welded to under side of lower angle, 1" holes in upper angle. Center 5/8" bolts in 1" holes. Apply flake graphite between washers and angle. Turn bolt tight and release one half turn. Remove bolts as soon as concrete has reasonably set, preferably within two hours, to avoid effect of temperature expansion or contraction of superstructure. Fill holes with bituminous material.



SECTION A-A
1"=1'-0"

Omit shop coat on all portions of Expansion Joint. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the second red lead coat in the field as well as the two field coats.

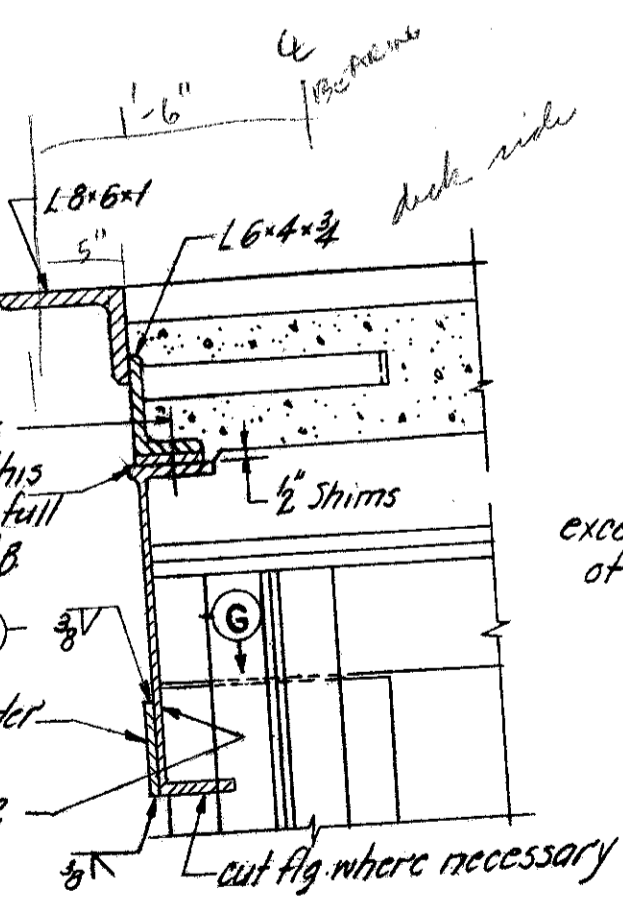


SECTION B-B
1"=1'-0"

Section C-C similar to Section B-B except as noted.

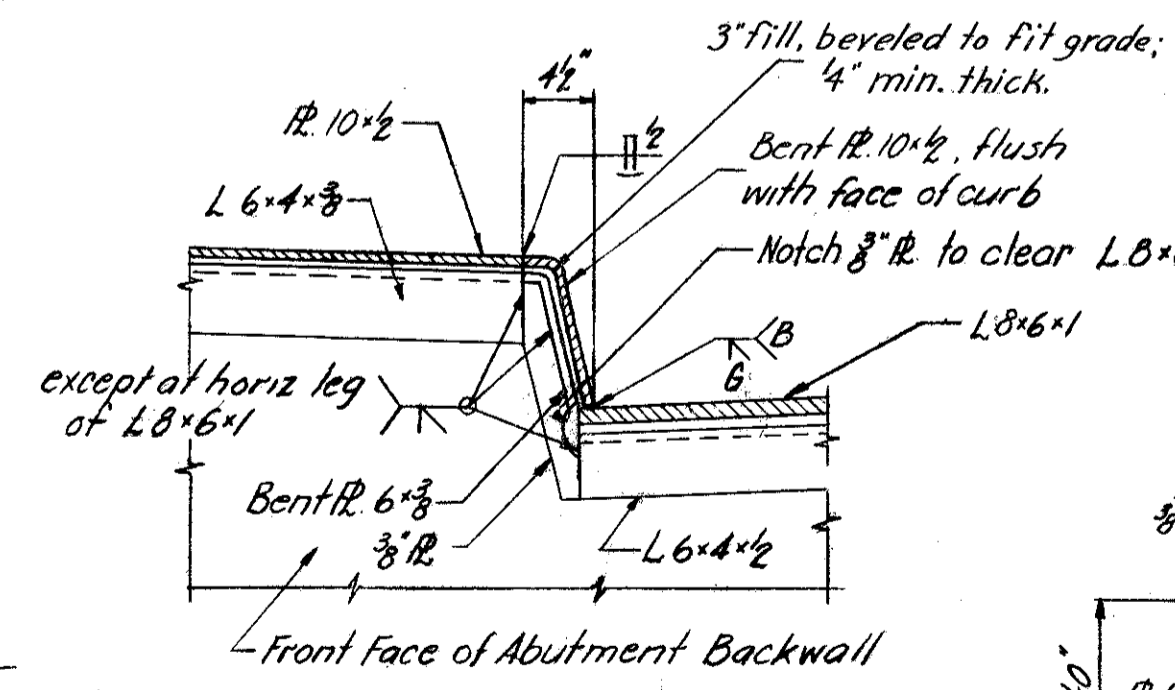
ANCHOR PLATE DETAIL
1"=1'-0"

1" holes may be burned in R.

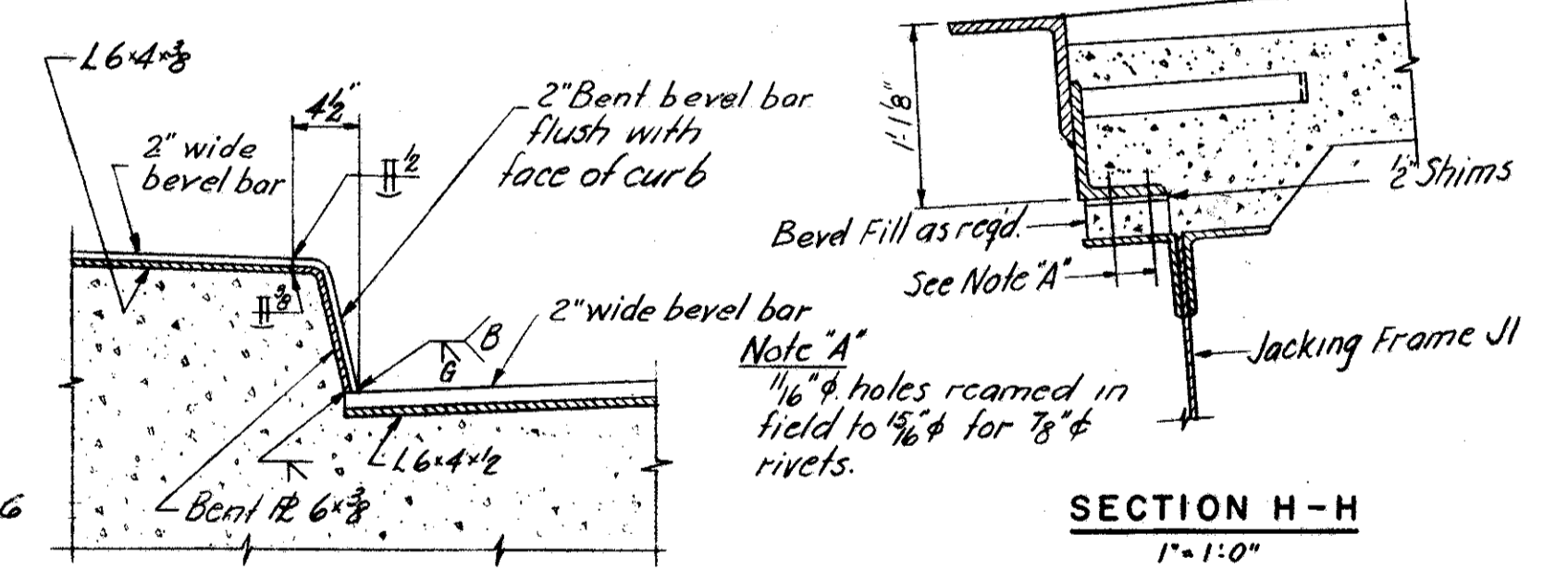


SECTION F-F
1"=1'-0"

Details and dimensions not shown same as in Section A-A. Holes for 1" Bolts to be sub-punched 1/4" smaller than req'd and reamed in field to req'd diameter.

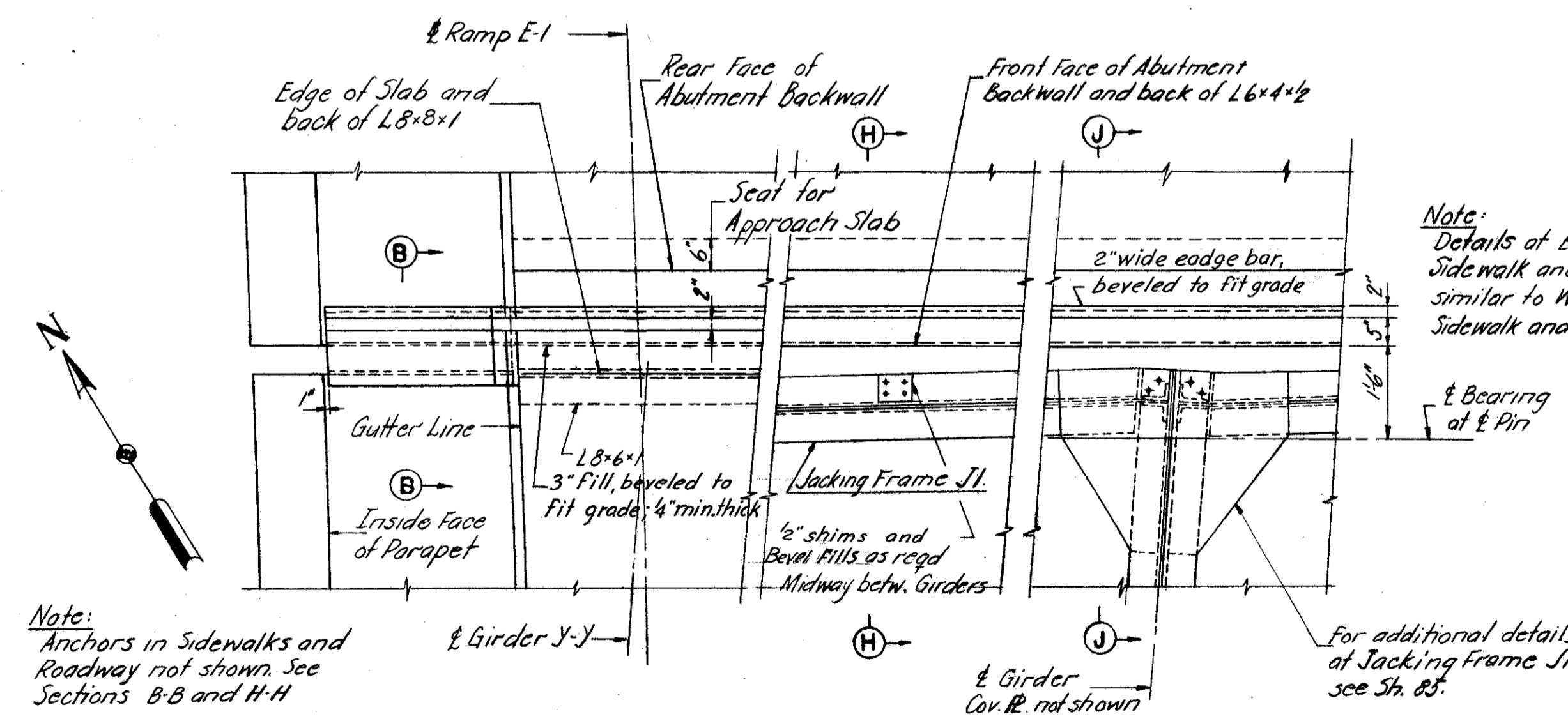


SECTION E-E
1"=1'-0"



SECTION D-D
1"=1'-0"

NOTES:
For Expansion Joint Notes see Sh. 93



PLAN-EXPANSION JOINT AT ABUTMENT E-1
1/2"=1'-0"

Note: Anchors in Sidewalks and Roadway not shown. See Sections B-B and H-H

Note: Details of East Sidewalk and Parapet similar to West Sidewalk and Parapet.

For additional details of Jacking Frame JI see Sh. 83.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
EXPANSION JOINTS
ABUTMENTS I B, E-1 AND E-2
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As Noted
MADE 3.12.56 DATE 11.19.56
TRCD N.B.K. DATE 3-20-57
CRD G.P.R. DATE 8.22.57

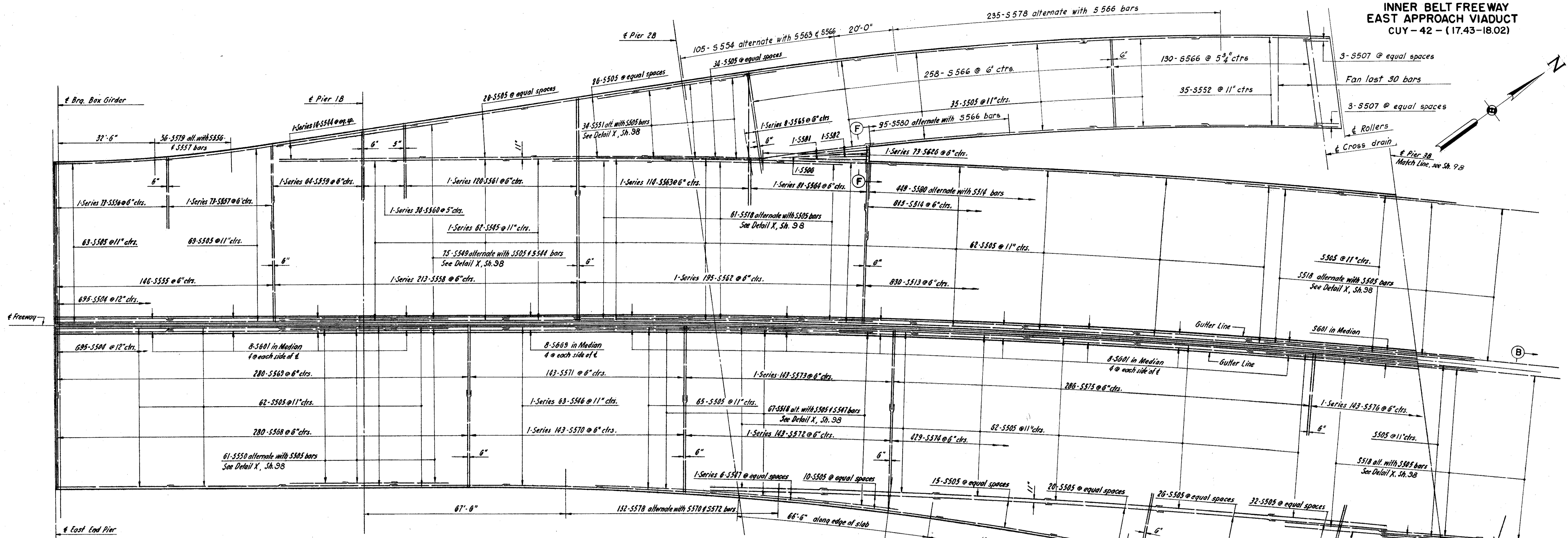
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-94

APPROVED
FEB 23 1957

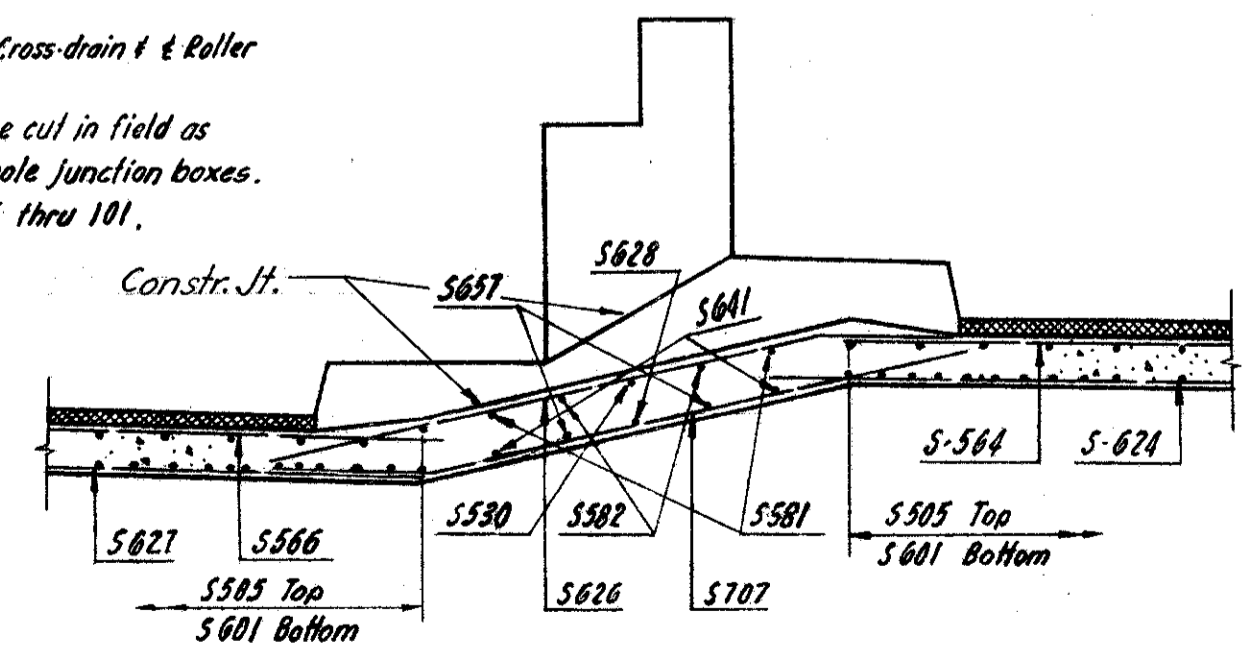
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

96
117

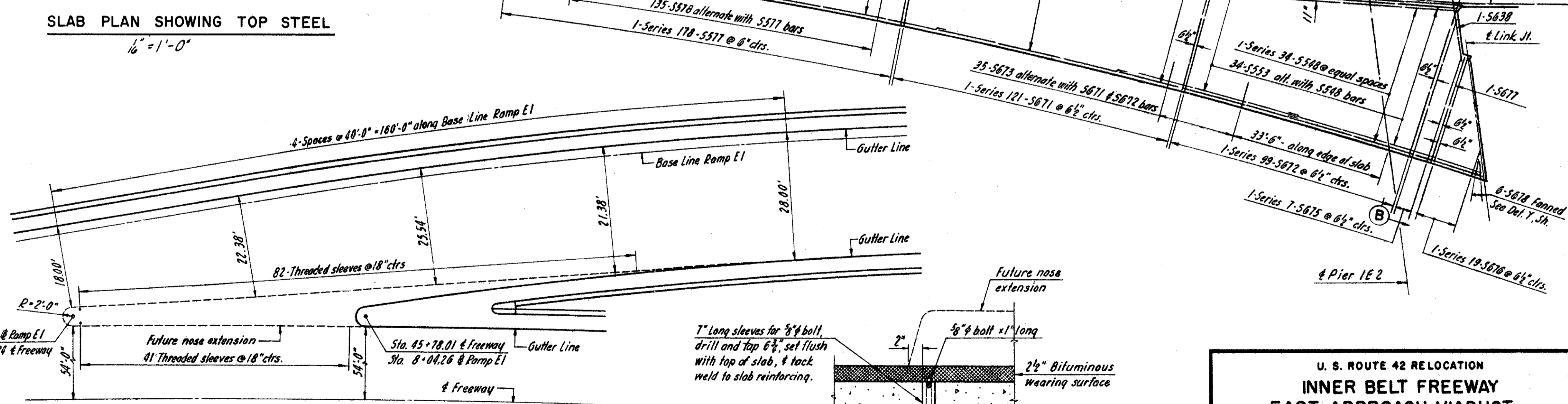
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



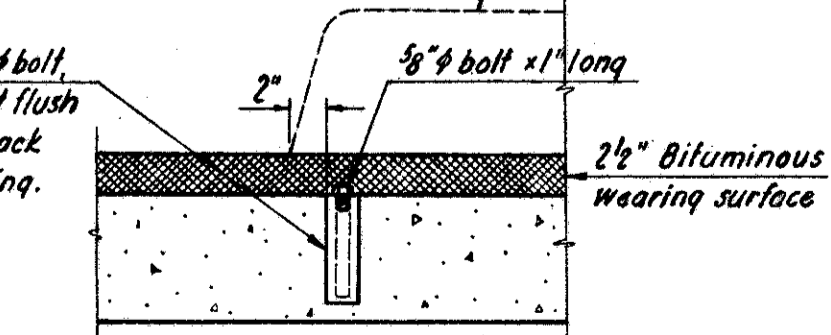
NOTES:
 Transverse slab bars shall be placed radial to Freeway, except of Ramps E1 & E2, radial to respective Base Line as shown.
 For location of scuppers, see Sh. 107.
 For additional reinf. of scuppers, see Sh. 108.
 For bottom slab reinforcement, see Sh. 95.
 For bar list, see Sh. 103.
 For Sect. B-B, see Sh. 102.
 For reinforcement not shown between Cross-drain & Roller in Ramp E1, see Sh. 109.
 Transverse and longitudinal bars shall be cut in field as required to clear all scuppers and light pole junction boxes. Typical for Units 1, 2, 3 & 4, Sheets 95 thru 101.



SECTION F-F
3" = 1'-0"



LOCATION OF THREADED SLEEVES
FUTURE NOSE EXTENSION ON RAMP E1
1/16" = 1'-0"



DETAIL OF THREADED SLEEVE
1" = 1'-0"

Note: Threaded sleeves and 3/4" x 1" bolts will be furnished under Item 5-7, "Structural Steel".

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
 EAST APPROACH VIADUCT**
 BR. NO. CUY-42-17.50

SLAB PLAN-EAST END PIER TO PIER 3B

CLEVELAND CUYAHOGA COUNTY OHIO

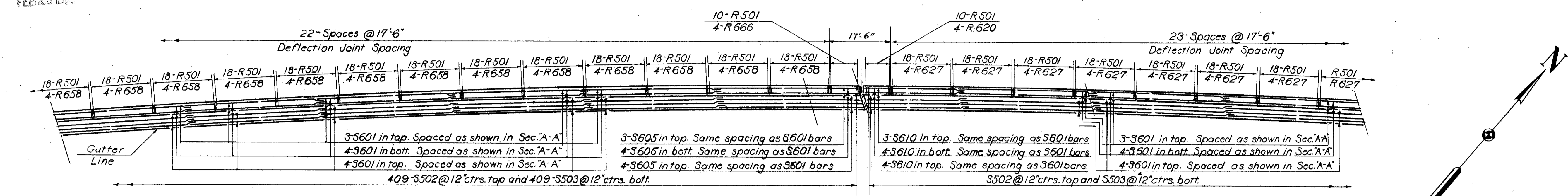
SCALE AS NOTED
 MADE C.C.T. DATE 1-31-57
 TRCD W.B. DATE 3-19-57
 CRD C.M.M. DATE 2-22-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET-96

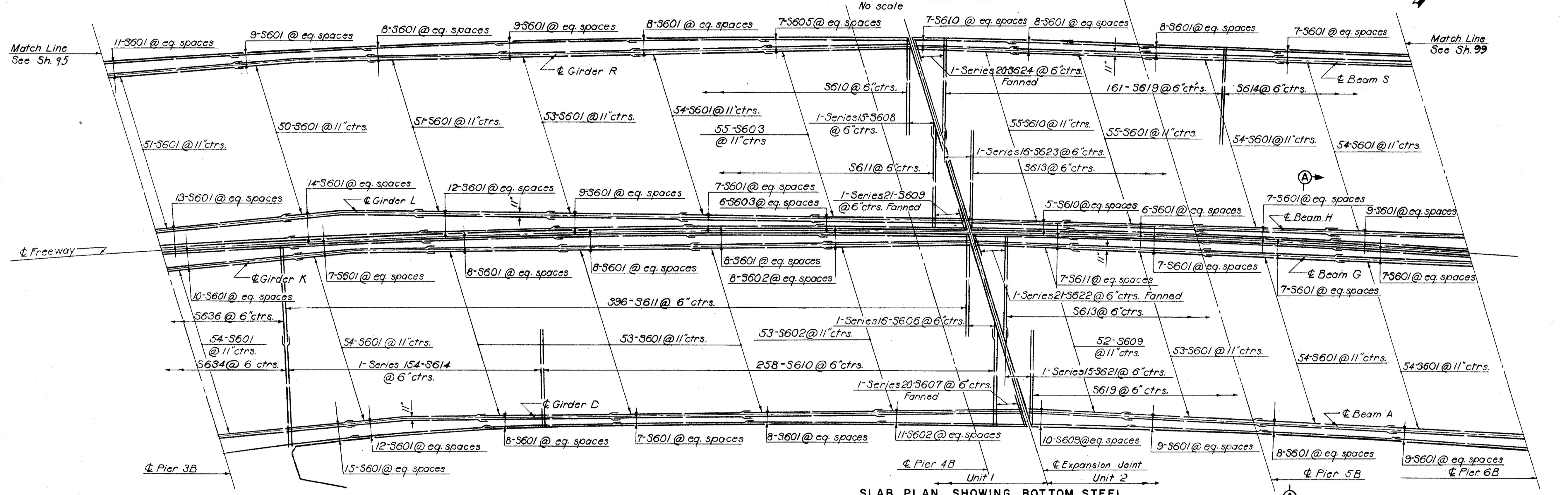
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

97
117

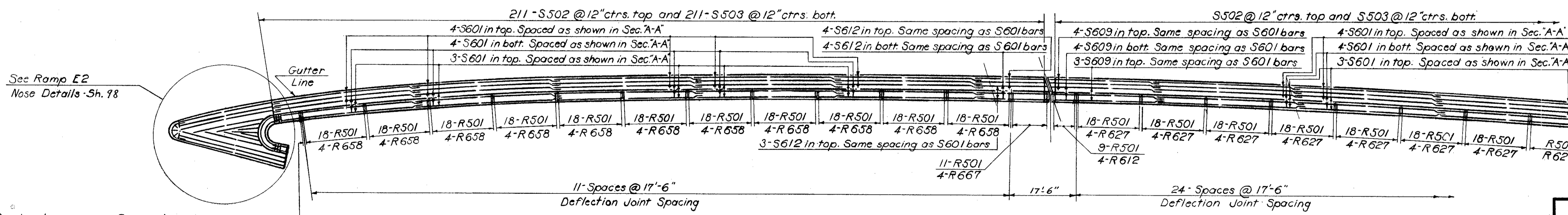
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NORTH SIDEWALK AND PARAPET
No scale



SLAB PLAN SHOWING BOTTOM STEEL



SOUTH SIDEWALK AND PARAPET
No scale

Parapet reinforcing transverse @ equal spaces
Parapet reinforcing longitudinal spaced as shown in Sec. A-A

- NOTES:**
- For Section A-A see Sh. 102.
 - For handrail details see Sh. 110.
 - For handrail and light pole locations see Sh. 106.
 - For scupper location see Sh. 109.
 - For additional reinf. under light poles see Sh. 102 & 111.
 - For additional reinf. at scupper see Sh. 108.
 - For details of nose on Ramp E2 see Sh. 98.
 - For top slab reinforcement see Sh. 98.
 - For bar list see Shs. 103 & 104.
 - Transverse bars shall be placed radial to & Freeway.

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-1750

SLAB PLAN-PIER 3B TO PIER 6B

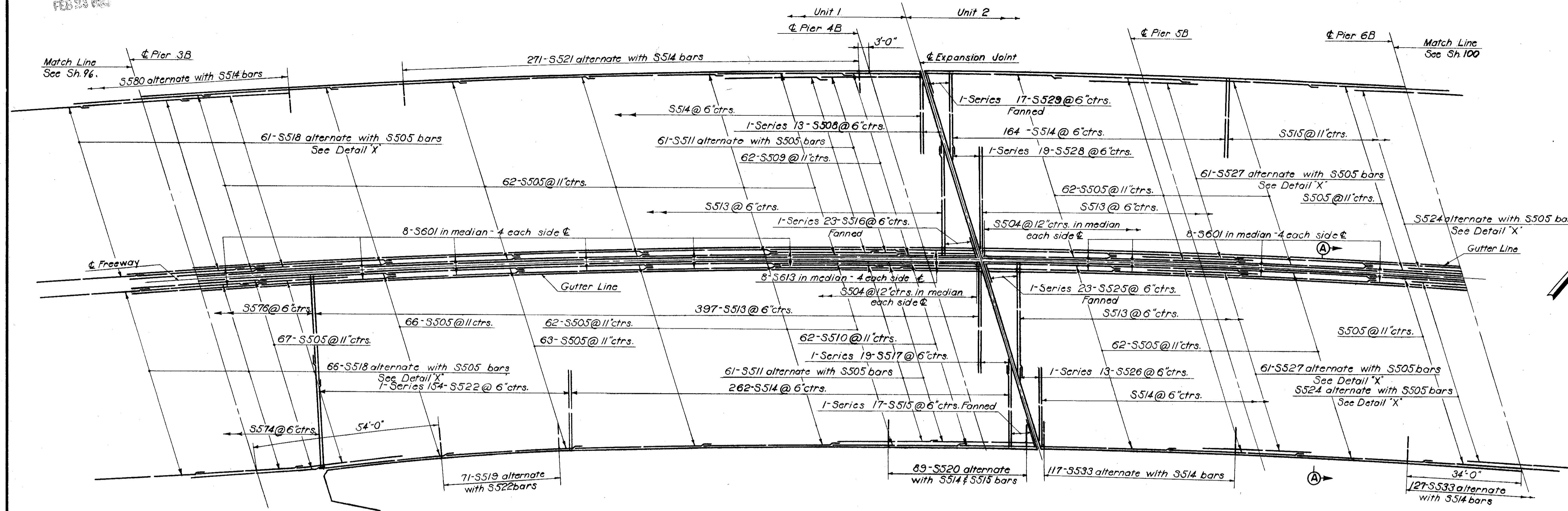
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/8"=1'-0" Unless Noted
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
MADE E.M.L. DATE 1-7-57
TRD. W.B. DATE 3-20-57
KANSAS CITY CLEVELAND NEW YORK
CRD. E.X.H. DATE 7-6-57
914 (2E) B SHEET-97

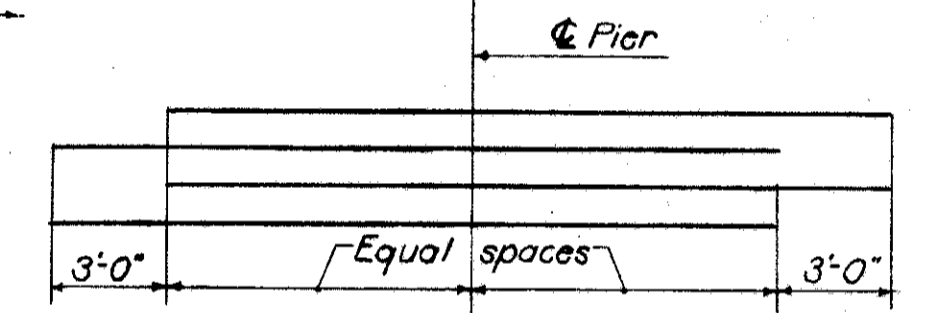
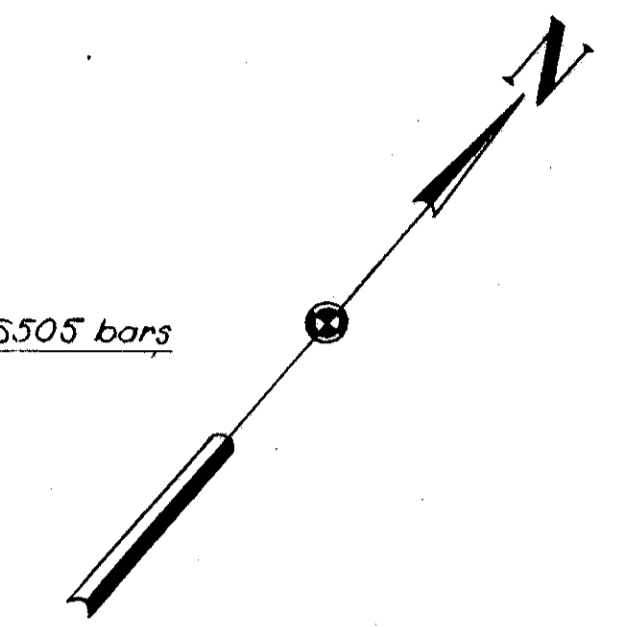
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	98
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

REVISED
FEB. 23 1957



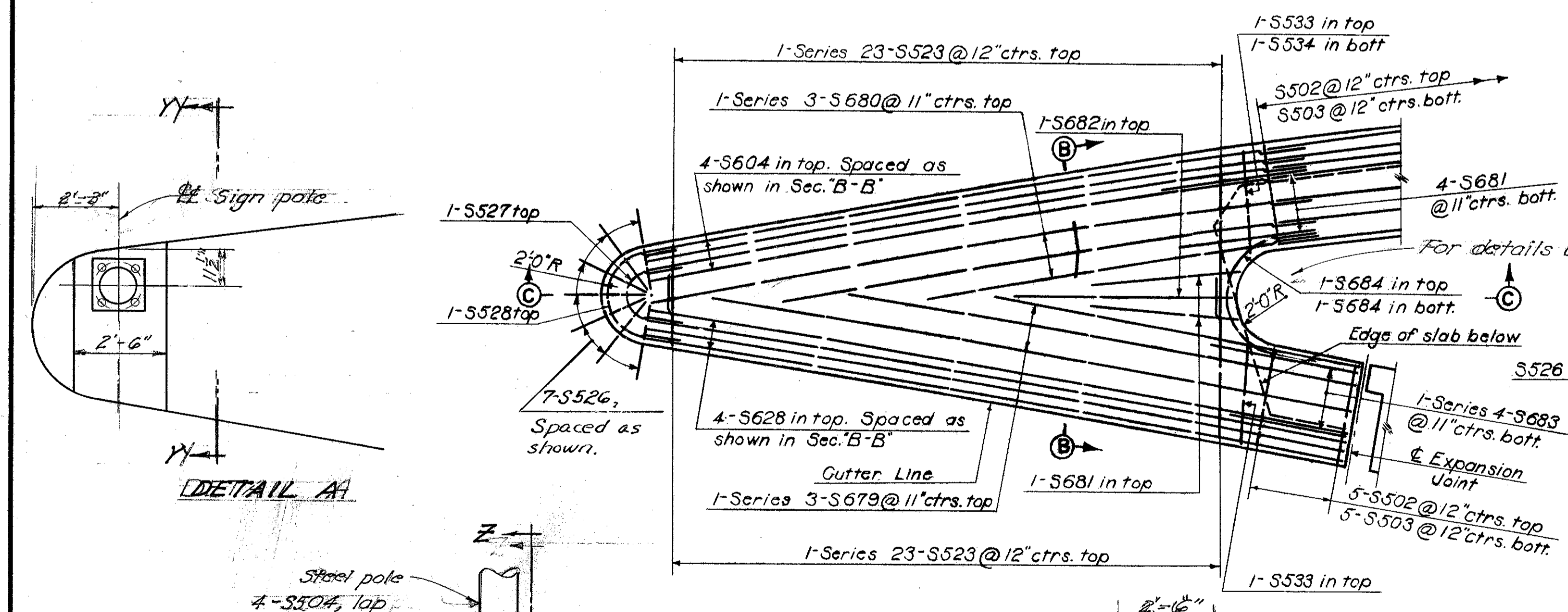
SLAB PLAN SHOWING TOP STEEL
1/8" = 1'-0"



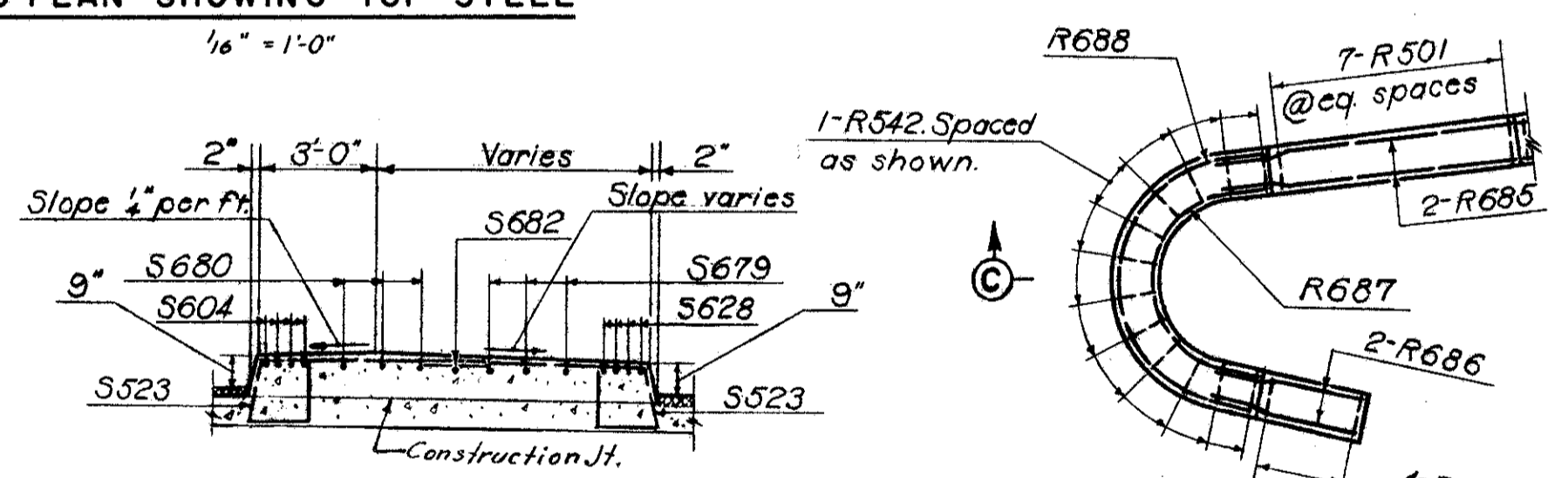
DETAIL "X"
No Scale

Showing placement of additional top slab reinforcing over interior piers of continuous units

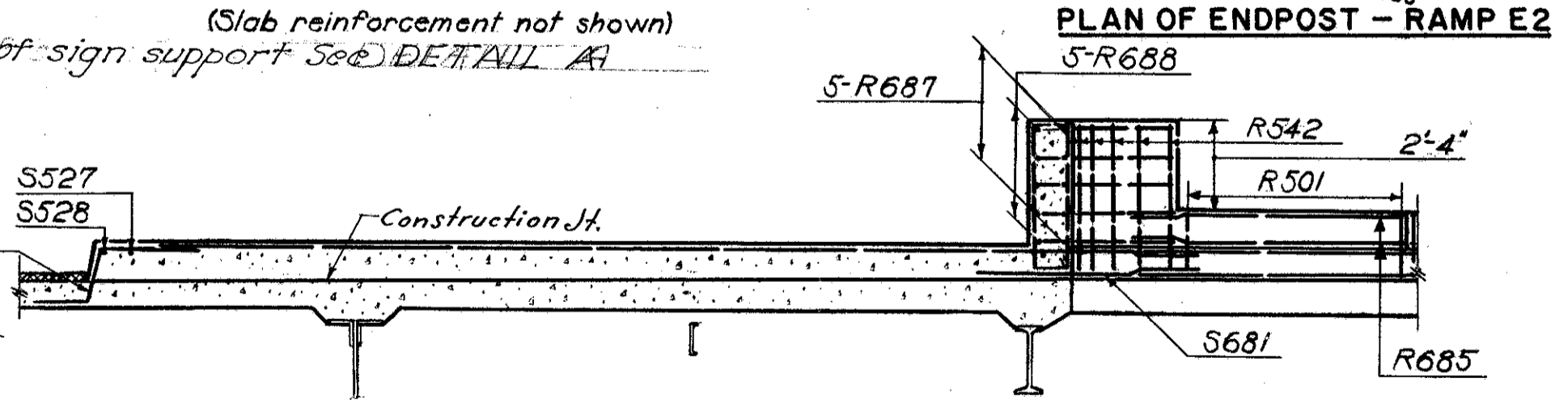
- NOTES:
- For bottom slab reinforcing and sidewalk and parapet reinforcing see Sh. 97.
 - For Section A-A see Sh. 102.
 - For station location of Nose Ramp E2 see Sh. 106.
 - For nose offsets and additional slab dimensions see Sh. 106.
 - For bar list see Sh. 103 & 104.
 - Transverse bars shall be placed radial to & Freeway.



PLAN OF NOSE AT RAMP E2



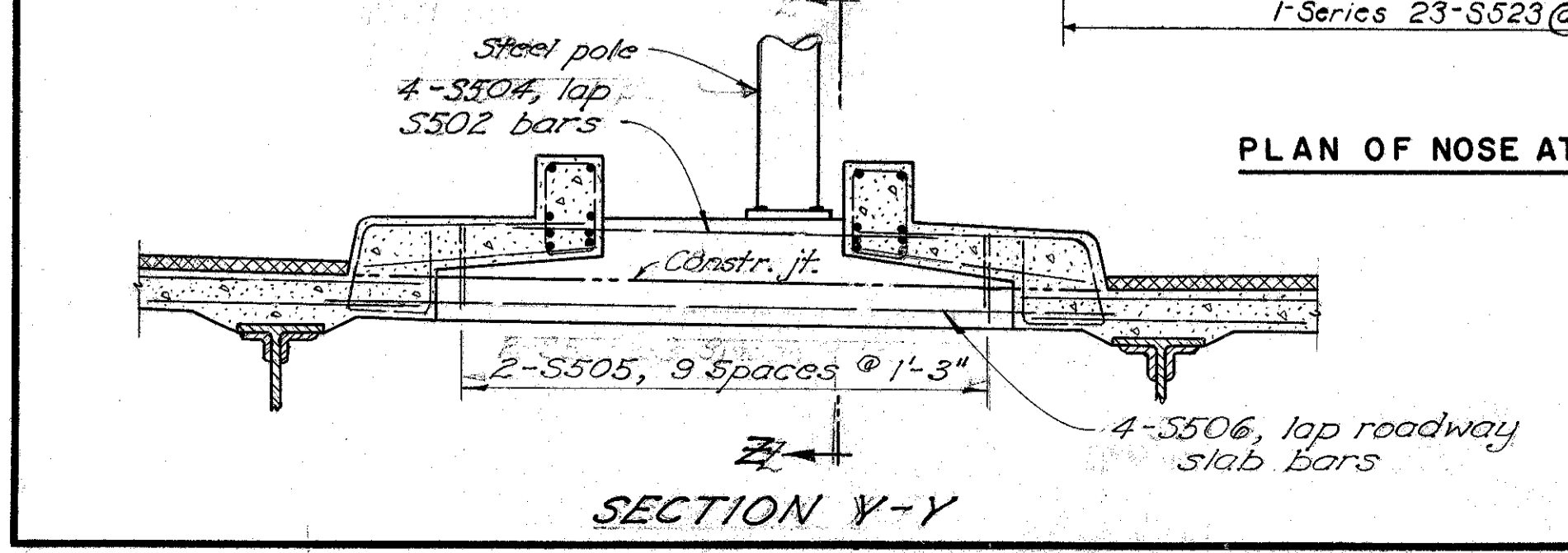
SECTION B-B
(Slab reinforcement not shown)



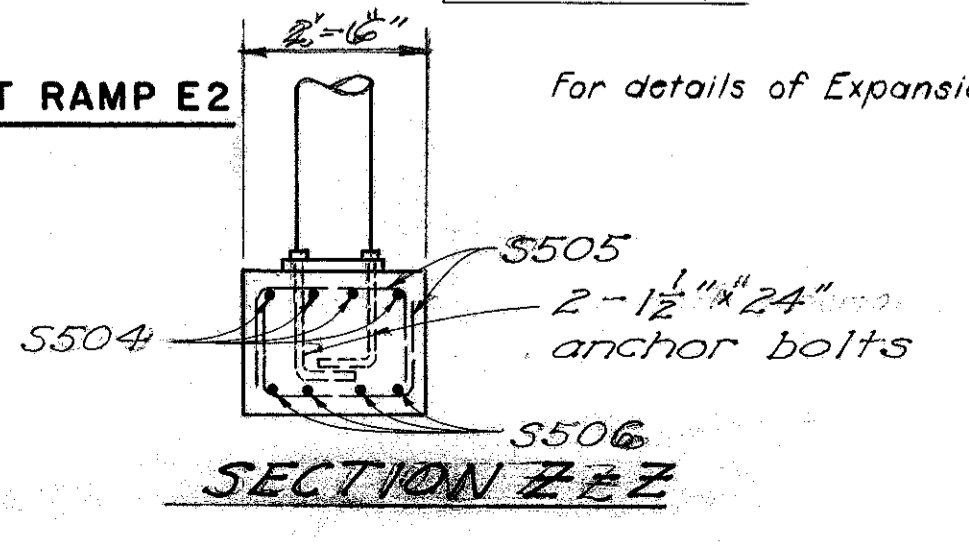
PLAN OF ENDPPOST - RAMP E2
5-R688

SECTION C-C
(Slab reinforcement not shown)

RAMP E2 NOSE DETAILS
4" = 1'-0"



SECTION Y-Y



SECTION Z-Z

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
SLAB PLAN - PIER 3B TO PIER 6B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As noted
MADE F.M.L. DATE 1-7-57
TRCD W.B. DATE 3-13-57
CHD F.X.H. DATE 4-6-57

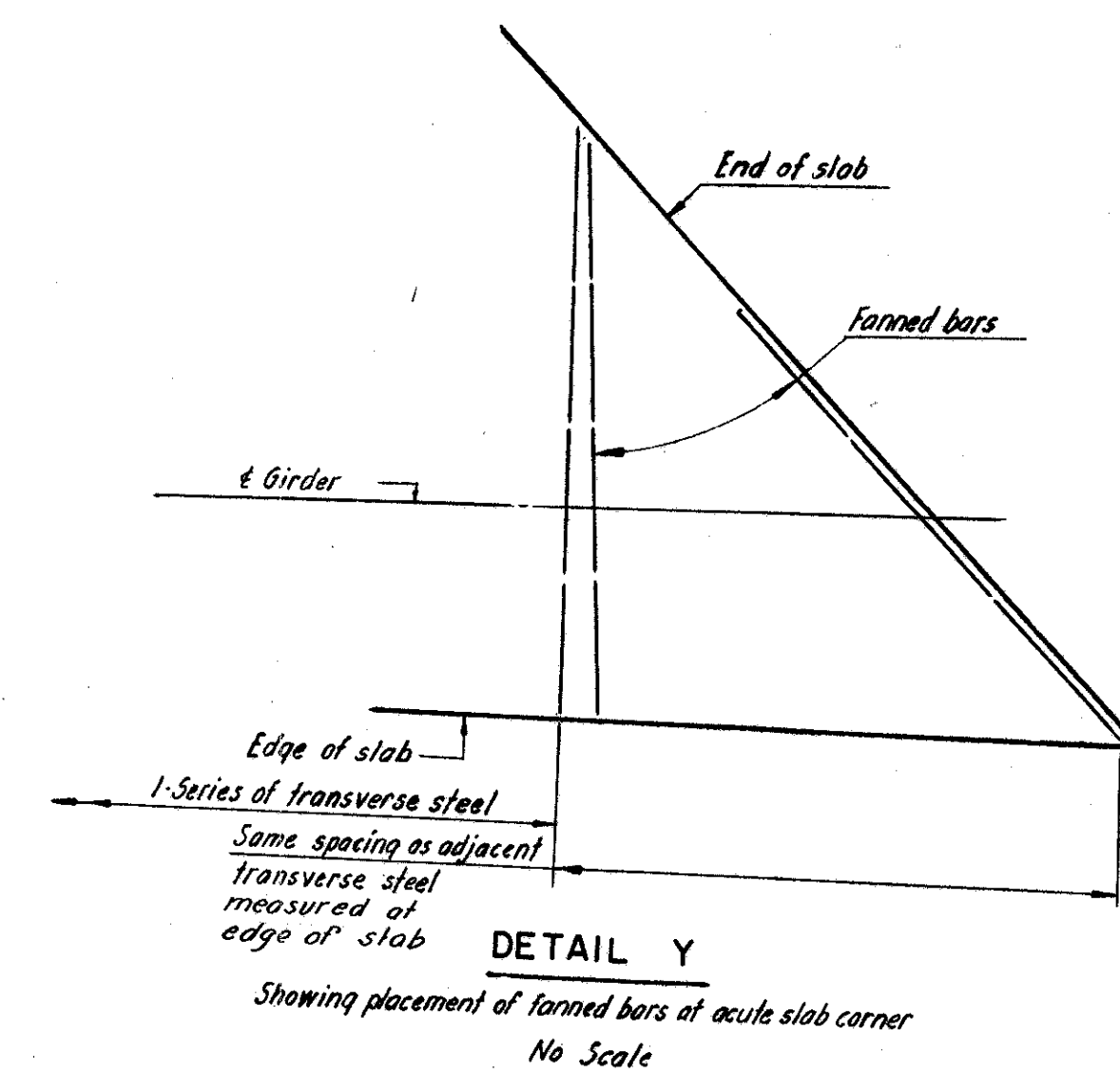
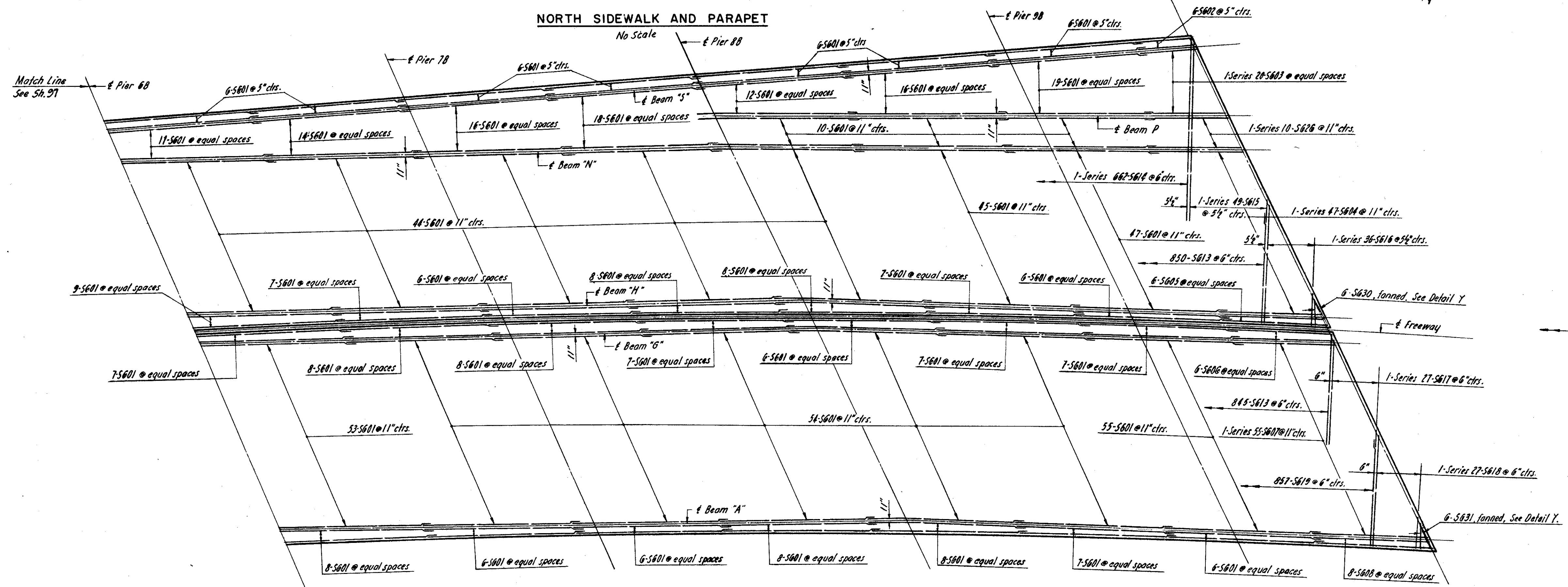
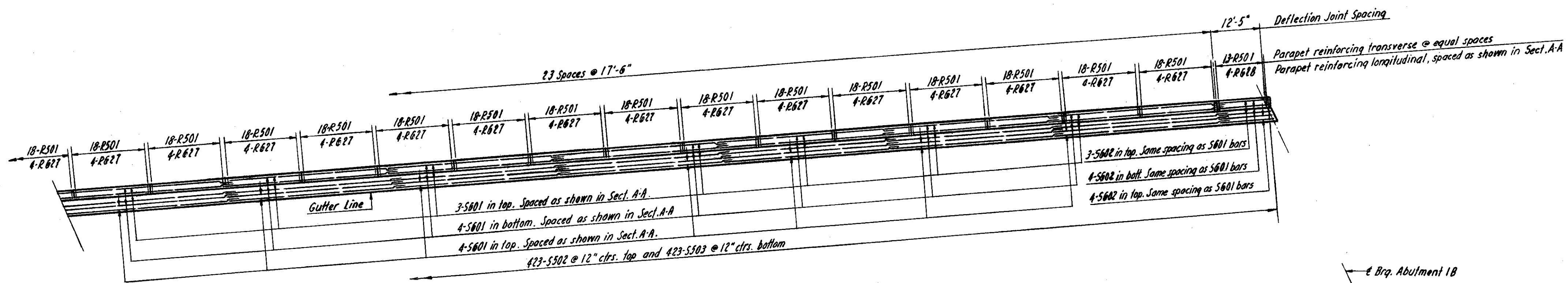
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET - 98

REVISIONS
FEB 23 1957

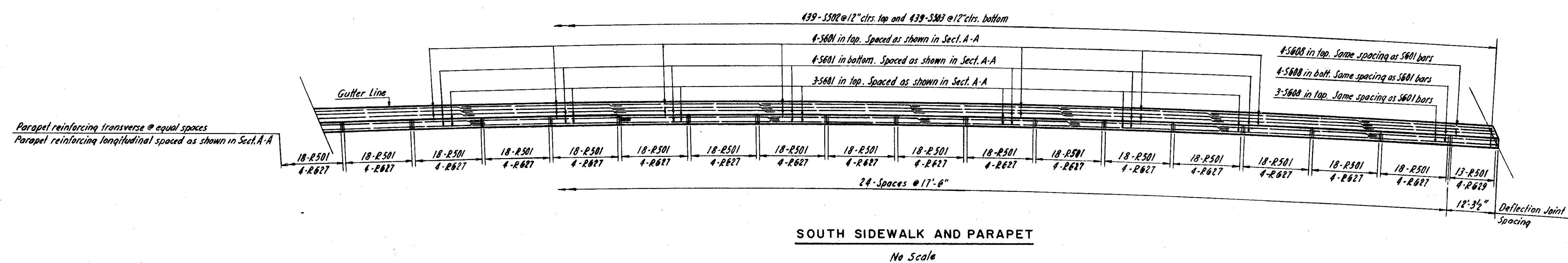
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

99
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



SLAB PLAN SHOWING BOTTOM STEEL



- NOTES:
- Transverse bars shall be placed radial to & Freeway.
 - For handrail details, see Sh.110.
 - For handrail and light pole spacing, see Sh.107.
 - For scupper location, see Sh.109.
 - For additional reinf. under light poles, see Sh.102 & 111.
 - For additional reinf. at scupper, see Sh.103.
 - For top slab reinforcement, see Sh.100.
 - For bar list, see Sh.104.
 - For Sect. A-A, see Sh.102.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

SLAB PLAN-PIER 6B TO ABUTMENT 1B
CLEVELAND CUYAHOGA COUNTY OHIO

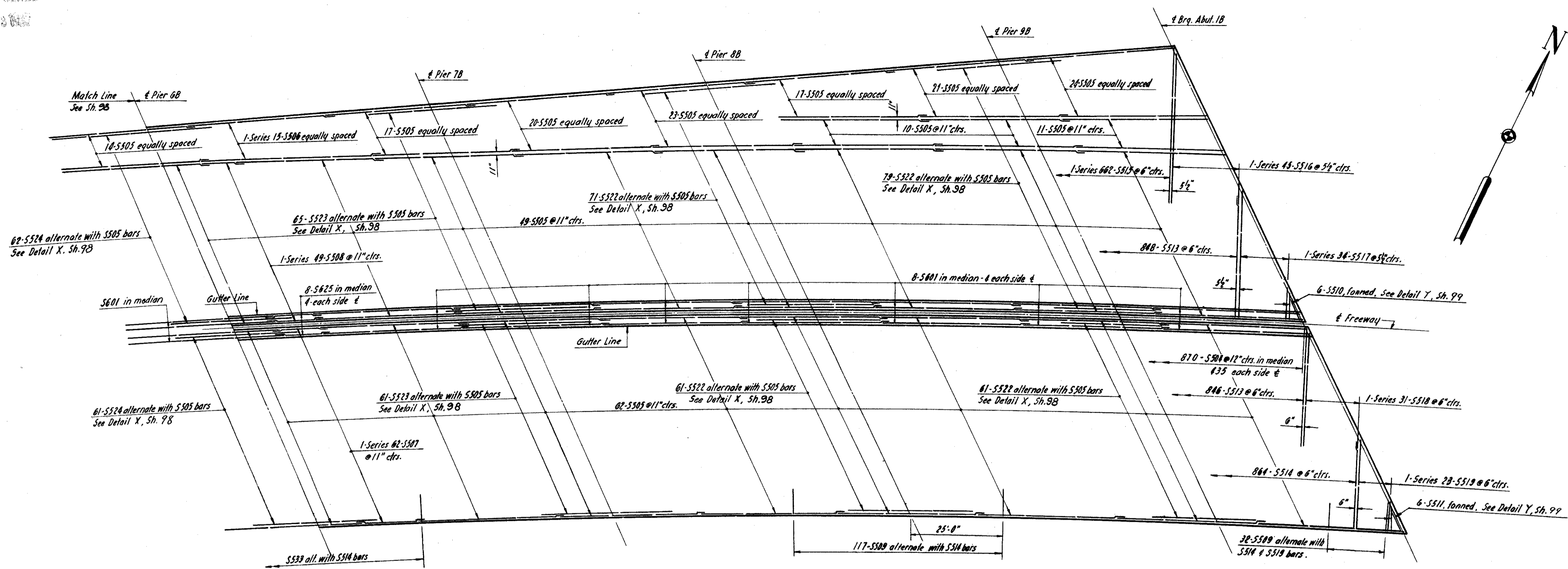
SCALE: 1/8" = 1'-0" Unless Noted
MADE C.T. DATE 1-2-57
TRCD H.G. DATE 3-1-57
CHD E.M.L. DATE 2-6-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
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KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET - 99

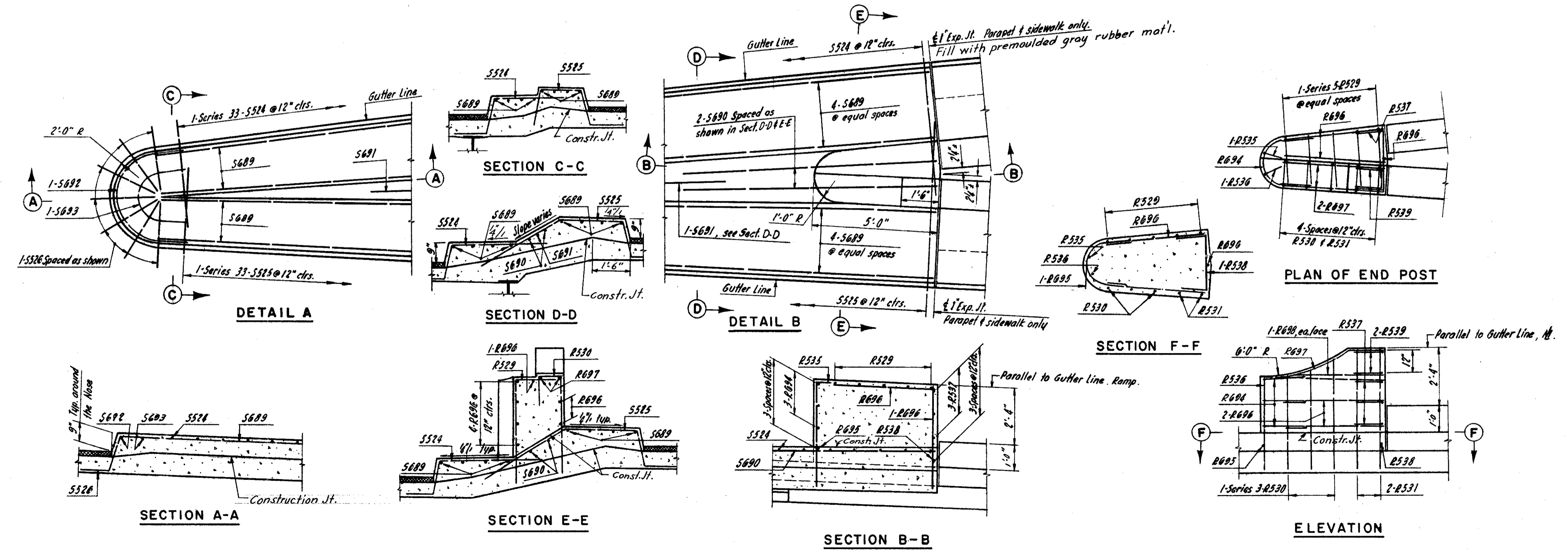
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

100
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



SLAB PLAN SHOWING TOP STEEL



RAMP EI NOSE DETAILS

NOTES:
 Transverse bars shall be placed radial to & freeway.
 For parapet, sidewalk and bottom slab reinforcing see Sh. 99
 For scupper location see Sh. 109
 For additional reinf. at scupper, see Sh. 108
 For bar list, see Sh. 10-2.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
 BR. NO. CUY - 42 - 17.50

SLAB PLAN-PIER 6B TO ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 6"=1'-0" Unless Noted
 MADE S.C.T. DATE 1-9-57
 TRCD M.B. DATE 3-19-57
 CKD F.M.L. DATE 7-6-57

HOWARD, NEEDLES, TAMMEN & BERGENOFF
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 KANSAS CITY CLEVELAND NEW YORK
 914 (2E) B SHEET- 100

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-17.43-18.02

MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. MENT	WEIGHT (LBS.)
				A	B	C	D		
SUPERSTRUCTURE - UNIT I									
R501	1760	4'-10"	109	0'-10"	1'-3"				8,872
S502	1726	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		13,802
S503	1726	3'-9"	Str.						6,751
S504	1390	6'-6"	144	1'-6"	1'-0"	1'-6"			9,424
S505	2452	40'-0"	Str.						102,297
S506	1	28'-6"	Str.						29
S507	6	9'-0"	Str.						56
S508	Series 13	4'-0" to 22'-6"	Str.					1'-6 1/2"	179
S509	62	20'-9"	Str.						1,342
S510	62	19'-6"	Str.						1,261
S511	244	29'-9"	Str.						7,571
S512	114	4'-11"	100	3'-9"					584
S513	1227	33'-0"	Str.						42,232
S514	1077	24'-0"	Str.						26,959
S515	Series 17	9'-6" to 24'-6"	Str.					0'-11 1/4"	301
S516	Series 23	6'-0" to 33'-6"	Str.					1'-3"	474
S517	Series 19	4'-0" to 31'-3"	Str.					1'-6 3/8"	349
S518	765	34'-3"	Str.						27,328
S519	71	8'-6"	101	7'-11"					630
S520	89	8'-0"	101	7'-5"					743
S521	271	7'-3"	101	6'-8"					2,050
S522	Series 15	24'-0" to 27'-6"	Str.					0'-0 1/4"	4,137
S523	Series 23	6'-9" to 10'-6"	140	1'-4"	1'-4"	1'-4"	2'-9" to 6'-6"	0'-0 1/2"	414
S524	Series 33	5'-10" to 7'-0"	118	2'-11" to 4'-1"	1'-7"	1'-4"	0'-3 1/2"	A-0'-0 7/8"	221
S525	Series 33	5'-11" to 10'-11"	142	1'-7" to 2'-10"	1'-4"	1'-4"	1'-4" to 2'-4"	0'-4" to 4'-7"	290
S526	14	4'-8"	118	1'-8"	1'-7"	1'-4"	0'-3 1/2"		68
S527	1	6'-0"	141	1'-0"	2'-10"	1'-7"			6
S528	1	7'-10"	141	1'-8"	4'-8"	1'-7"			8
R529	Series 5	5'-10" to 6'-5"	104	1'-8" to 2'-3"	4'-2"			A-0'-1 3/4"	32
R530	Series 3	6'-11" to 7'-7"	143	0'-11"	3'-10" to 4'-6"	2'-2"		B-0'-4"	23
R531	2	8'-3"	143	0'-11"	5'-0"	2'-4"			18
S532	10	30'-9"	Str.						321
S533	2	8'-3"	140	1'-4"	1'-4"	1'-4"	4'-3"		18
S534	1	4'-4"	Str.						4
R535	1	4'-9"	104	0'-9"	4'-0"				5
R536	1	4'-8"	104	0'-9"	3'-11"				5
R537	3	5'-6"	105	2'-4"	1'-7"				18
R538	1	3'-11"	104	2'-4"	1'-7"				4
R539	2	3'-4"	105	0'-10"	1'-3"				7
R542	12	9'-6"	109	0'-10"	3'-7"				119
S544	Series 14	44'-9" to 47'-0"	Str.					0'-2 1/8"	670
S545	Series 62	14'-0" to 21'-6"	Str.					0'-1 1/2"	1,147
S546	Series 23	21'-6" to 28'-9"	Str.					0'-1 3/8"	1,651
S547	Series 6	40'-0" to 48'-0"	Str.					1'-6"	275
S548	Series 34	38'-6" to 45'-6"	Str.					0'-2 9/16"	1,489
S549	75	50'-9"	Str.						3,970
S550	183	19'-0"	Str.						3,627
S551	102	19'-9"	Str.						2,101
S552	35	41'-6"	Str.						1,515
S553	68	37'-6"	Str.						2,660
S554	105	7'-6"	101	6'-11"					821
S555	146	34'-3"	Str.						5,215
S556	Series 73	22'-9" to 24'-0"	Str.					0'-0 3/8"	1,779
S557	Series 73	24'-0" to 28'-3"	Str.					0'-0 1/8"	1,989
S558	Series 213	43'-0" to 45'-3"	Str.					0'-0 1/8"	9,803
S559	Series 64	19'-6" to 24'-0"	Str.					0'-0 1/8"	1,452
S560	Series 34	24'-0" to 24'-9"	Str.					0'-0 1/4"	865
S561	Series 20	24'-9" to 33'-3"	Str.					0'-0 7/8"	3,630
S562	Series 195	41'-0" to 45'-3"	Str.					0'-0 1/4"	8,771
S563	Series 14	33'-3" to 46'-0"	Str.					0'-1 3/8"	4,711
S564	Series 81	15'-0" to 17'-0"	Str.					0'-0 5/8"	1,352
S565	Series 8	12'-0" to 38'-0"	Str.					3'-8 9/16"	209
S566	388	32'-0"	Str.						12,950
S568	280	32'-6"	Str.						9,491
S569	280	24'-6"	Str.						7,155
S570	Series 143	32'-6" to 34'-0"	Str.					0'-0 1/8"	4,959
S571	143	25'-6"	Str.						3,803
S572	Series 143	33'-3" to 36'-0"	Str.					0'-0 1/4"	5,164
S573	Series 143	26'-0" to 28'-9"	Str.					0'-0 1/4"	4,083
S574	429	26'-6"	Str.						11,857
S575	286	30'-9"	Str.						9,172
S576	Series 143	26'-6" to 28'-9"	Str.					0'-0 3/8"	4,120

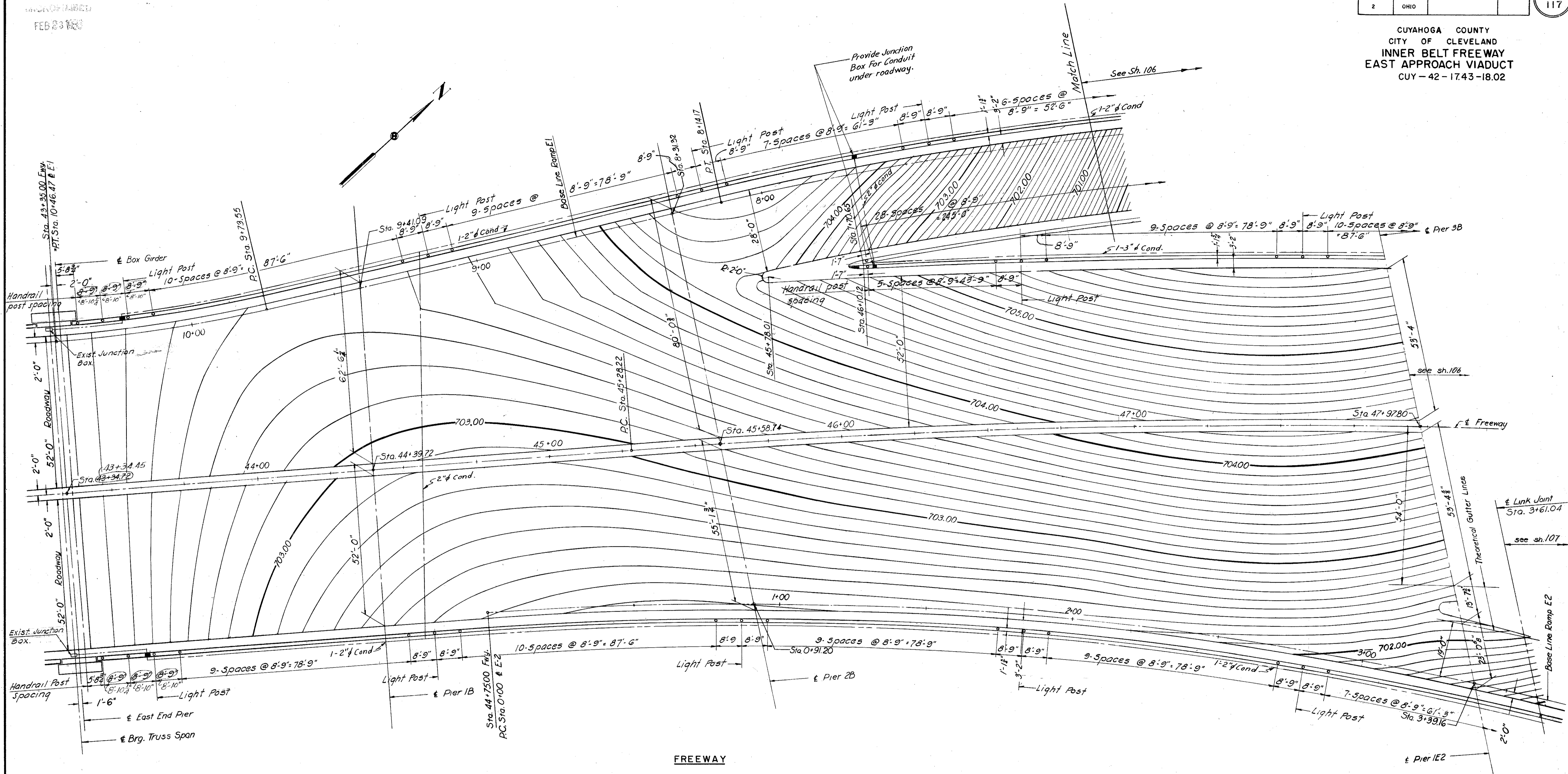
MARK	NO.	LENGTH	TYPE	DIMENSIONS				SERIES INCR. MENT	WEIGHT (LBS.)
				A	B	C	D		
S577	Series 178	11'-3" to 21'-0"	Str.					0'-0 1/16"	2,993
S578	522	8'-0"	101	7'-5"					4,356
S579	56	8'-6"	101	7'-11"					496
S580	544	9'-0"	101	8'-5"					5,107
S581	2	26'-0"	Str.						54
S582	2	17'-0"	Str.						35
S601	3268	40'-0"	Str.						196,341
S602	72	41'-0"	Str.						4,434
S603	61	41'-9"	Str.						3,826
S604	4	26'-9"	Str.						161
S605	18	40'-3"	Str.						1,089
S606	Series 16	5'-0" to 27'-9"	Str.					1'-6 3/16"	394
S607	Series 20	9'-6" to 29'-3"	Str.					1'-0 1/2"	581
S608	Series 15	5'-0" to 26'-6"	Str.					1'-6 7/16"	354
S609	Series 21	6'-0" to 30'-9"	Str.					1'-2 1/8"	580
S610	1073	28'-0"	Str.						45,126
S611	1226	29'-3"	Str.						53,862
S612	11	19'-6"	Str.						323
S613	8	23'-3"	Str.						279
S614	Series 154	28'-0" to 31'-6"	Str.					0'-0 1/4"	6,882
S615	Series 213	39'-0" to 41'-3"	Str.					0'-0 1/8"	12,838
S616	Series 71	27'-0" to 28'-3"	Str.					0'-0 3/16"	2,945
S617	Series 73	28'-3" to 32'-6"	Str.					0'-0 1/8"	3,330
S618	Series 64	23'-9" to 28'-3"	Str.					0'-0 1/8"	2,499
S619	Series 34	28'-3" to 30'-0"	Str.					0'-0 1/8"	1,487
S620	Series 120	30'-0" to 37'-6"	Str.					0'-0 3/8"	6,083
S621	Series 195	37'-0" to 41'-3"	Str.					0'-0 1/4"	11,459
S622	Series 114	37'-6" to 50'-3"	Str.					0'-1 3/8"	7,513
S623	Series 8	8'-0" to 34'-0"	Str.					3'-8 9/16"	252
S624	Series 81	20'-0" to 22'-0"	Str.					0'-0 1/8"	2,555
S625	144	30'-3"	Str.						6,543
S626	Series 73	5'-3" to 9'-6"	108	1'-9"	3'-6" to 7'-6"	0'-2" to 2'-0"		0'-0 1/8"	808
S627	388	30'-9"	Str.						17,920
S628	283	28'-6"	Str.						12,115
S629	278	28'-9"	Str.						12,004
S630	Series 143	28'-6" to 30'-0"	Str.					0'-0 1/8"	6,283
S631	143	29'-9"	Str.						6,390
S632	Series 143	29'-3" to 32'-0"	Str.					0'-0 1/4"	6,577
S633	Series 143	30'-3" to 33'-0"	Str.					0'-0 1/4"	6,792
S634	429	26'-6"	Str.						17,075
S635	286	34'-0"	Str.						14,605
S636	Series 143	30'-9" to 33'-0"	Str.					0'-0 3/8"	6,846
S637	Series 178	7'-3" to 17'-0"	Str.					0'-0 1/8"	3,241
S638	1	14'-6"	Str.						22
S639	17	45'-3"	Str.						1,155
S640	11	46'-9"	Str.						772
S641	13	26'-6"	Str.						517
S642	38	4'-9"	Str.						2,797
S643	8	9'-0"	Str.						108
S644	5	50'-0"	Str.						376
S645	4	36'-6"	Str.						219
S646	Series 5	16'-0" to 40'-0"	Str.					6'-0"	210
S647	Series 51	38'-0" to 44'-0"	Str.					0'-1 7/8"	3,141
S648	10	44'-9"	Str.						673
S649	13	45'-6"	Str.						889
S650	Series 54	7'-6" to 14'-0"	Str.					0'-1 1/2"	871
S651	Series 6	15'-0" to 35'-0"	Str.					4'-0"	225
S652	Series 11	6'-0" to 31'-0"	Str.					2'-6"	306
S653	31	21'-0"	Str.						978
S654	Series 9	14'-0" to 30'-0"	Str.					2'-0"	297
S655	15	30'-0"	Str.						676
S656	13	36'-0"	Str.						703
S657	2	17'-0"	Str.						51
R658	362	17'-0"	Str.						8,988
R659	8	14'-3"	Str.					</	

UNCORRECTED
FEB 23 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

105
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-1743-18.02



NOTES:
Handrail spacing is measured horizontally along centerline of railing at top of parapet.
Conduit shown crossing roadway shall be placed below stringers. For details see Sh. III
Conduits are shown schematically. Conduit shall be placed in parapet, except at East End Pier. For detail see Sh. III.

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-1750
CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/8" = 1'-0"
MADE & E.S. DATE 12-27-56
TRCD E.G. DATE 2-27-57
CKD M.H.H. DATE 2-16-57

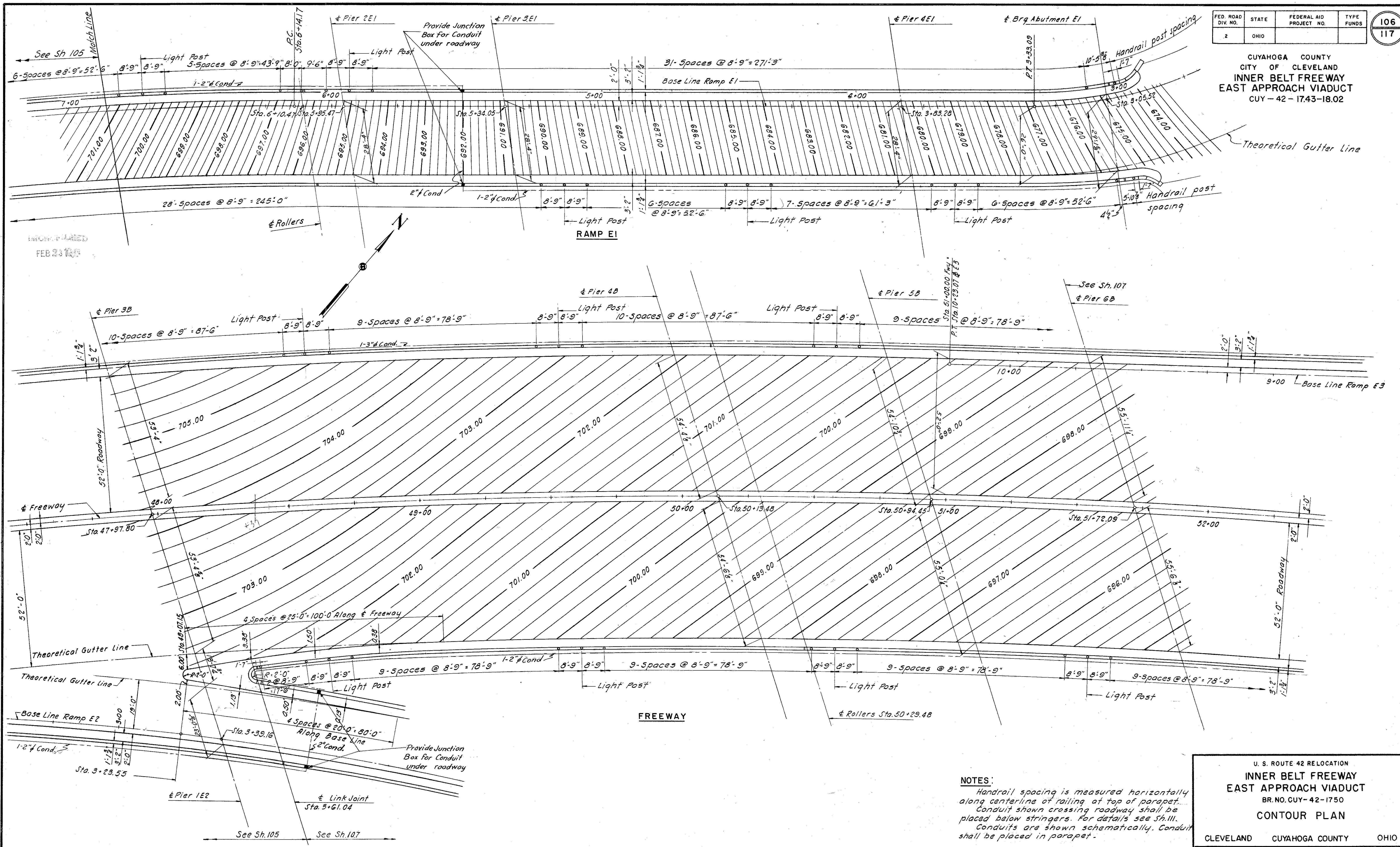
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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-105

Revised 2-13-58

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

106
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-1743-18.02



NOTES:
Handrail spacing is measured horizontally along centerline of railing at top of parapet.
Conduit shown crossing roadway shall be placed below stringers. For details see Sh. III.
Conduits are shown schematically. Conduit shall be placed in parapet.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

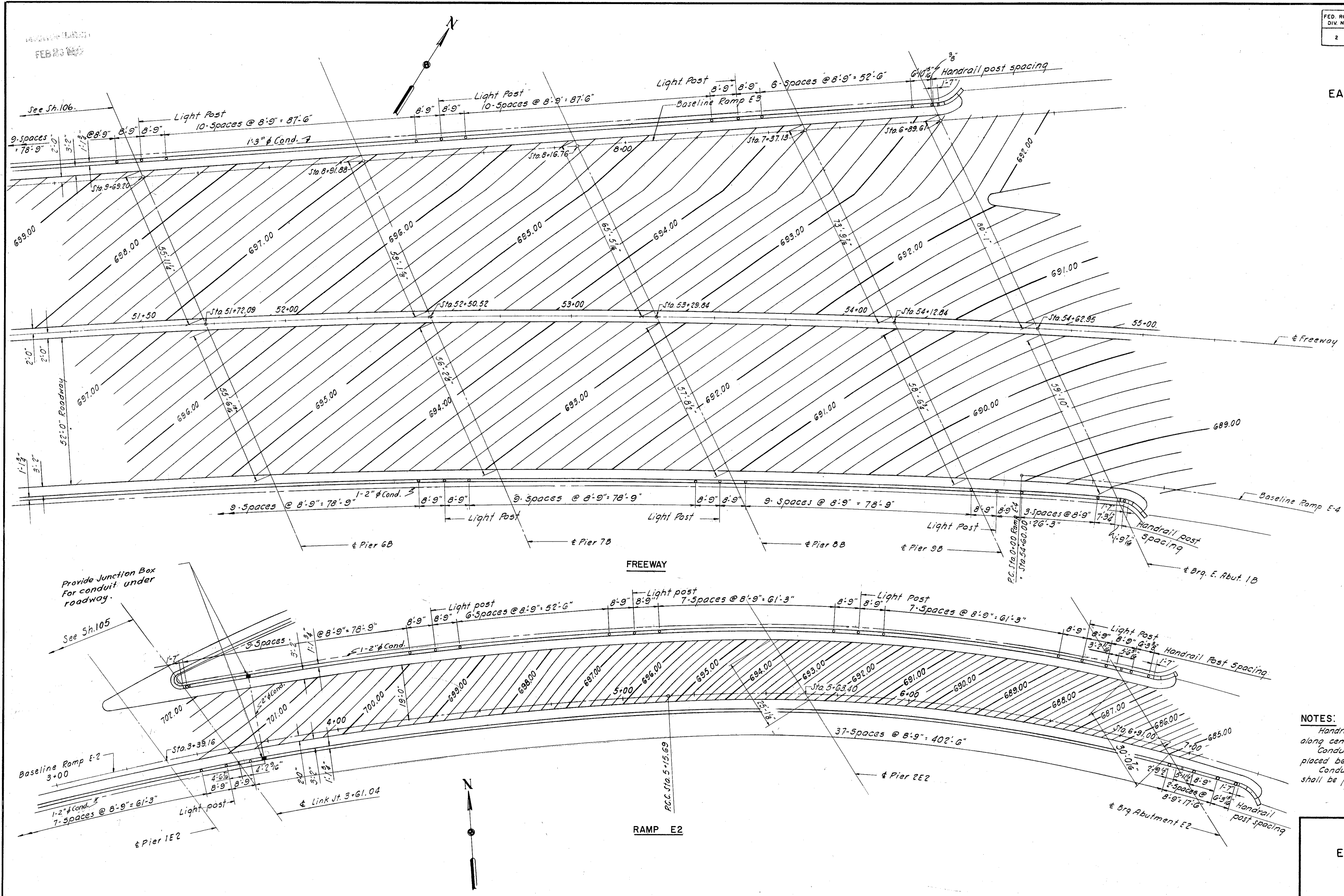
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MADE BY E.C. DATE 12-26-56
TRCD F.G. DATE 2-7-57
CND/CHM/PLZ DATE 2-28-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-106

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

107
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-17.43-18.02



NOTES:
Handrail spacing is measured horizontally along centerline of railing at top of parapet.
Conduit shown crossing roadway shall be placed below stringers. For details see Sh. 111
Conduits are shown schematically. Conduit shall be placed in parapet.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

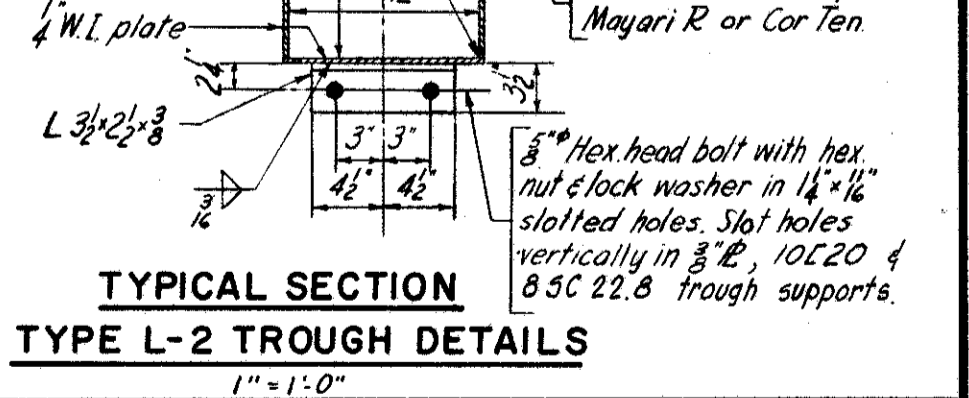
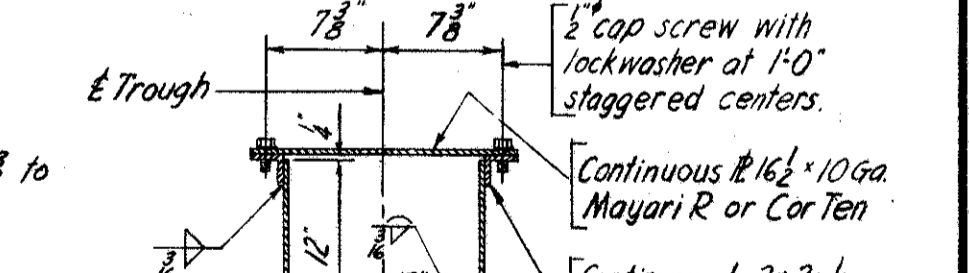
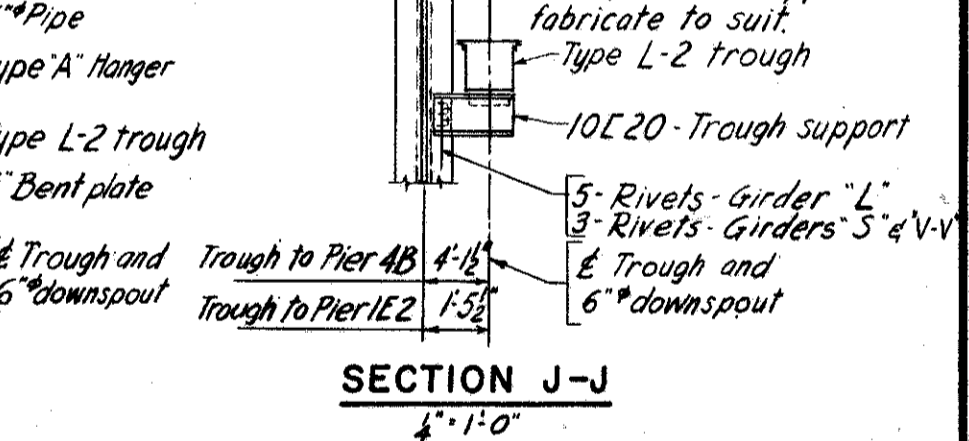
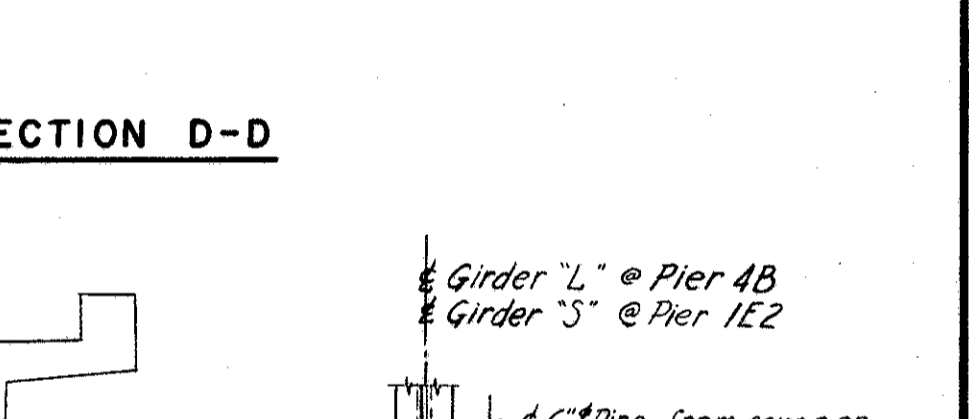
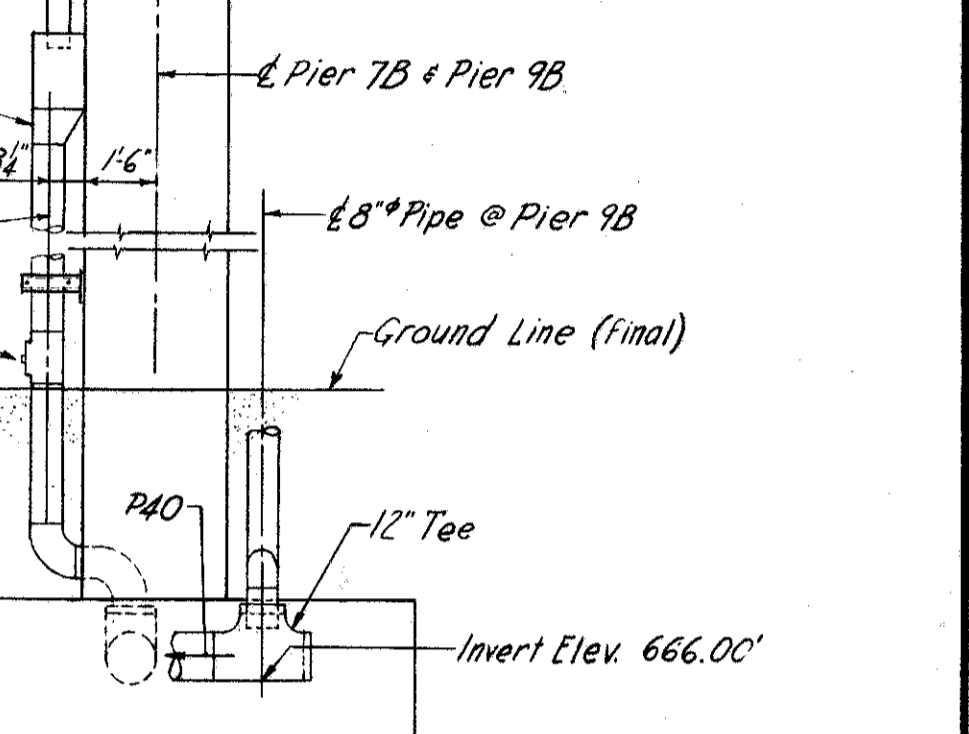
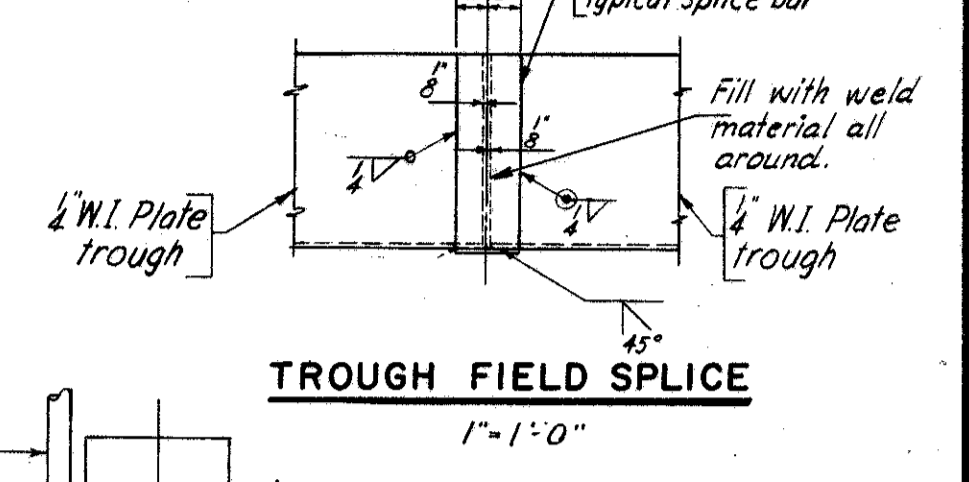
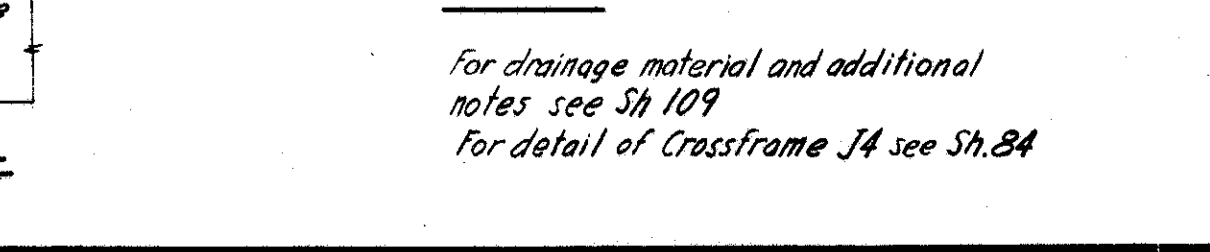
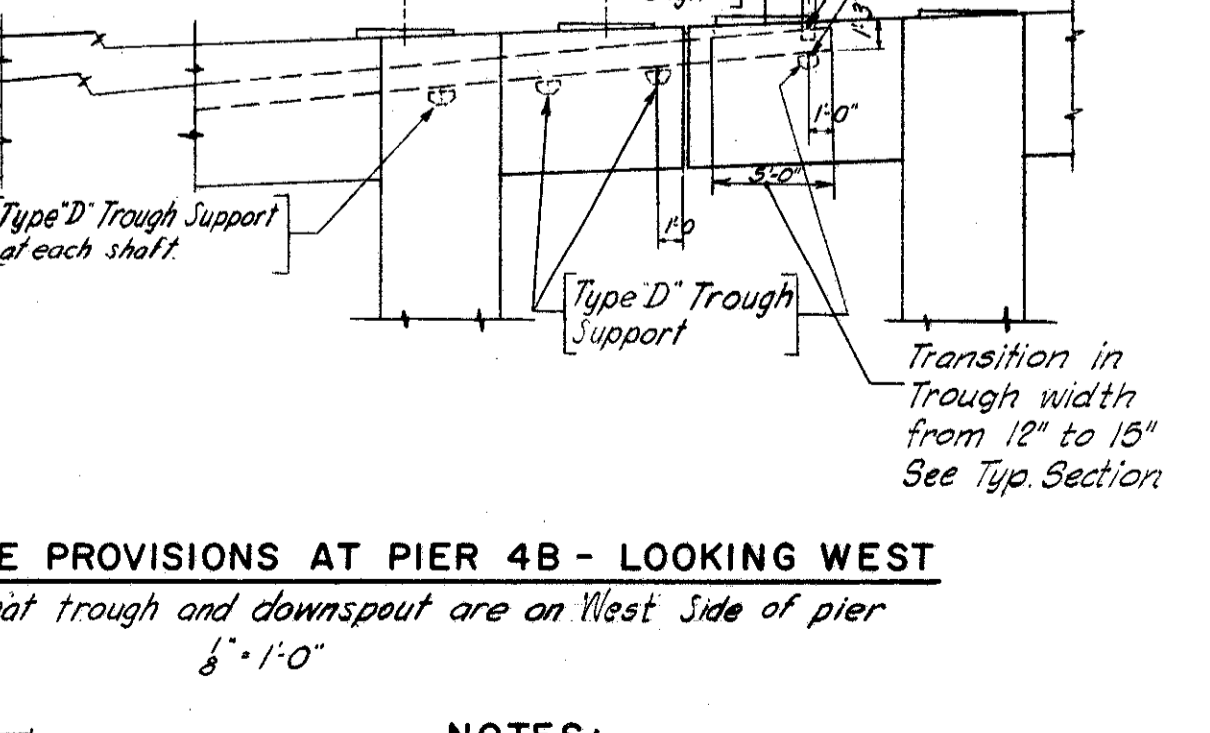
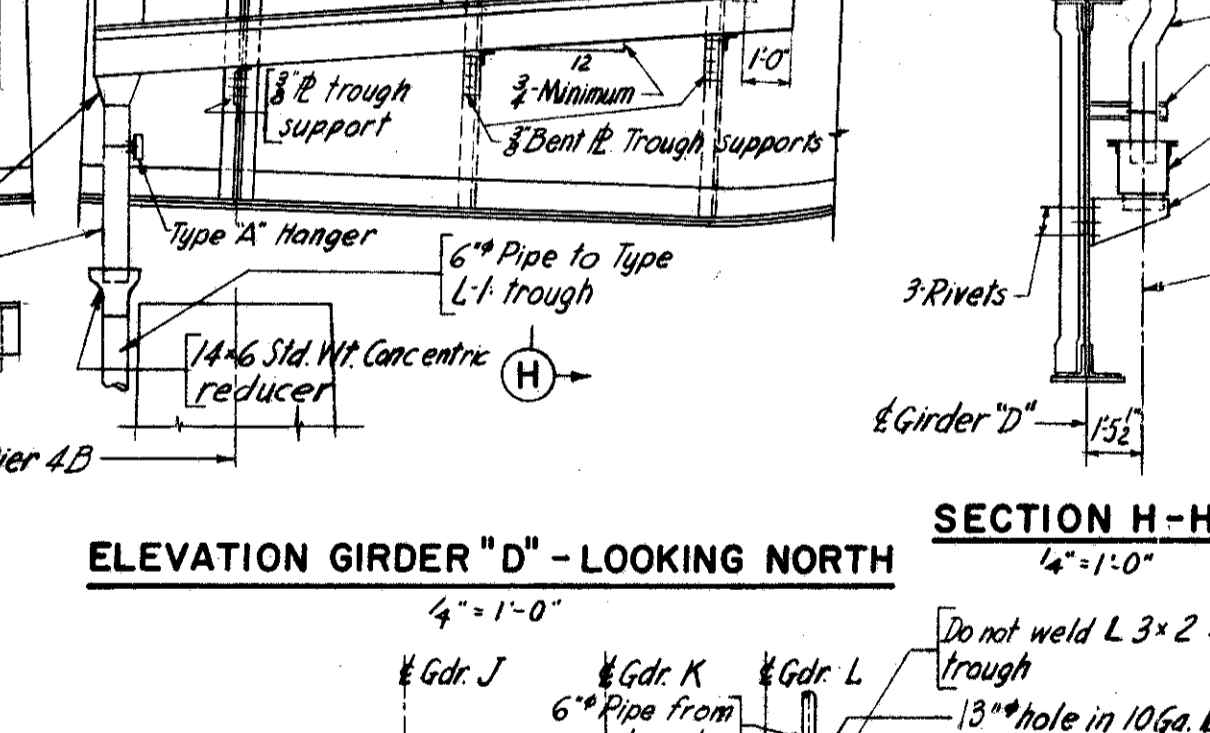
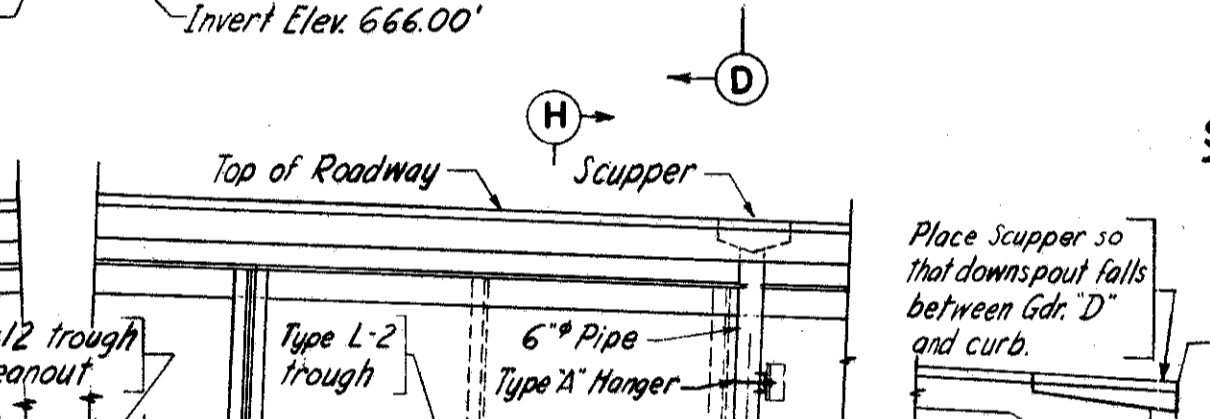
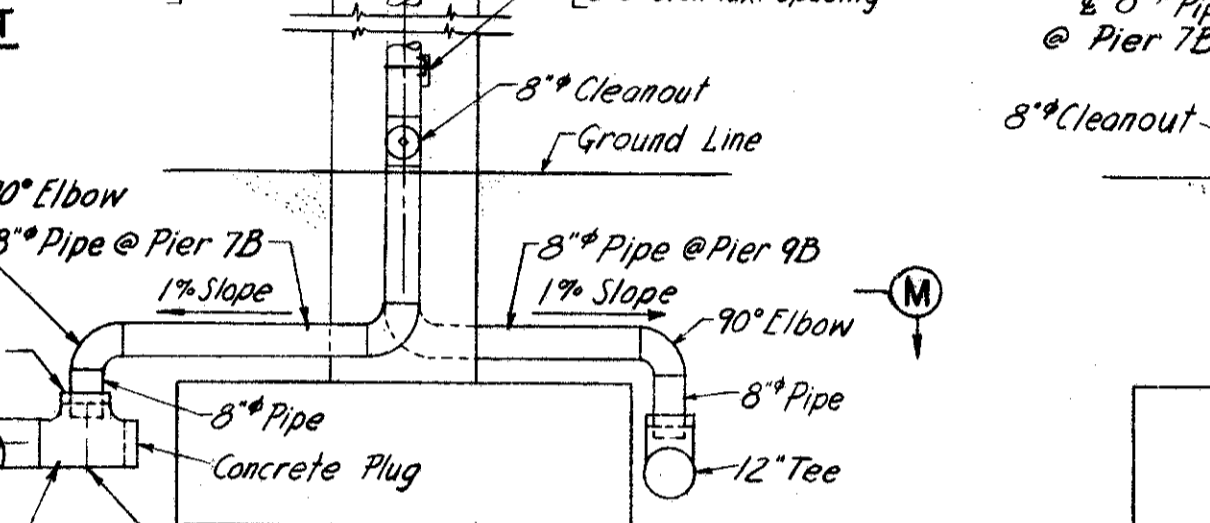
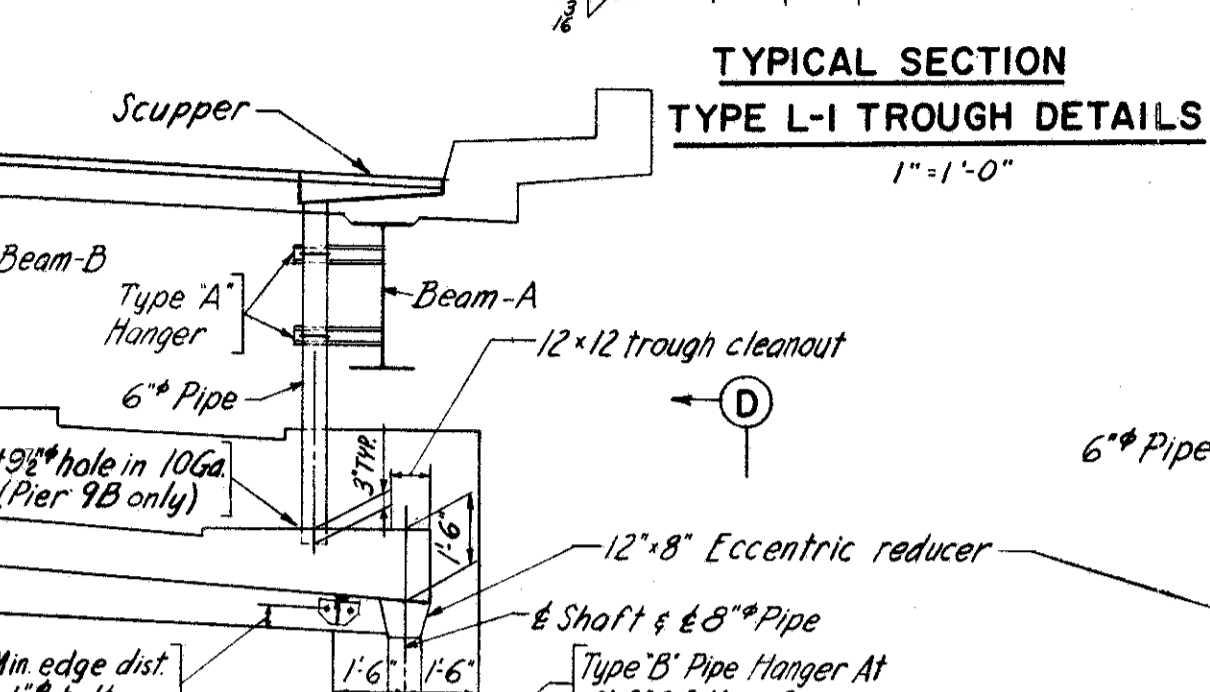
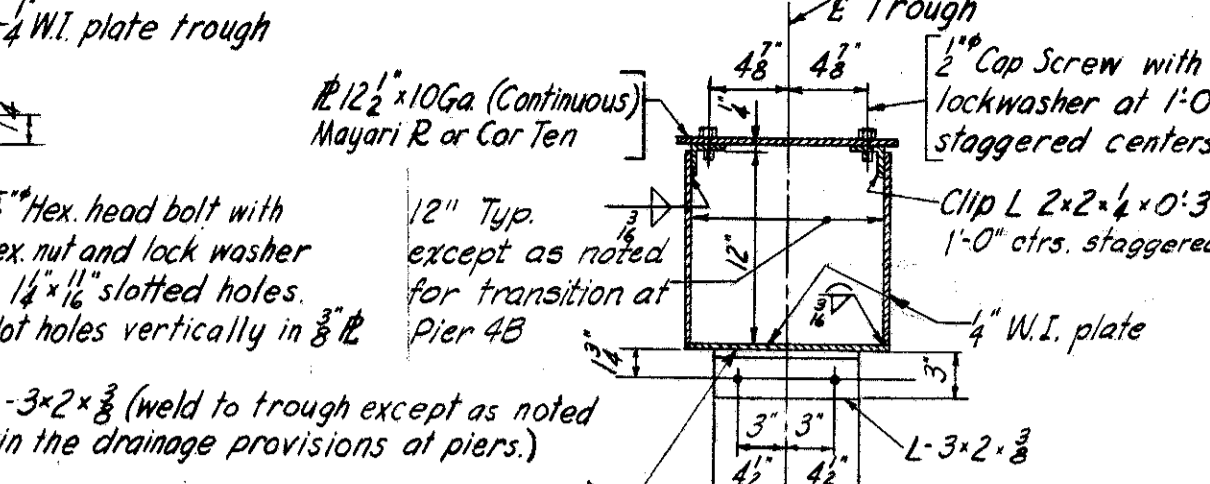
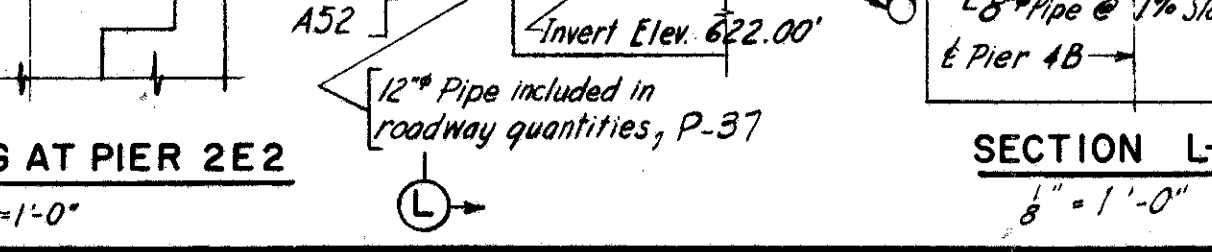
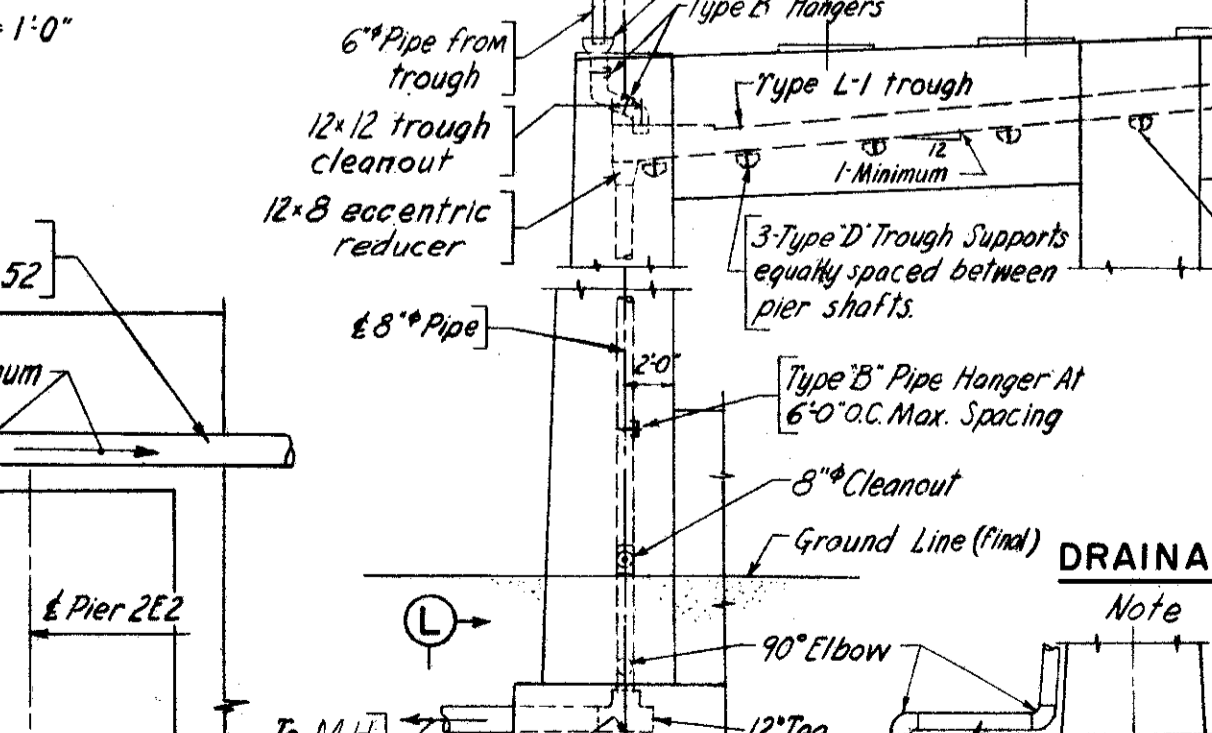
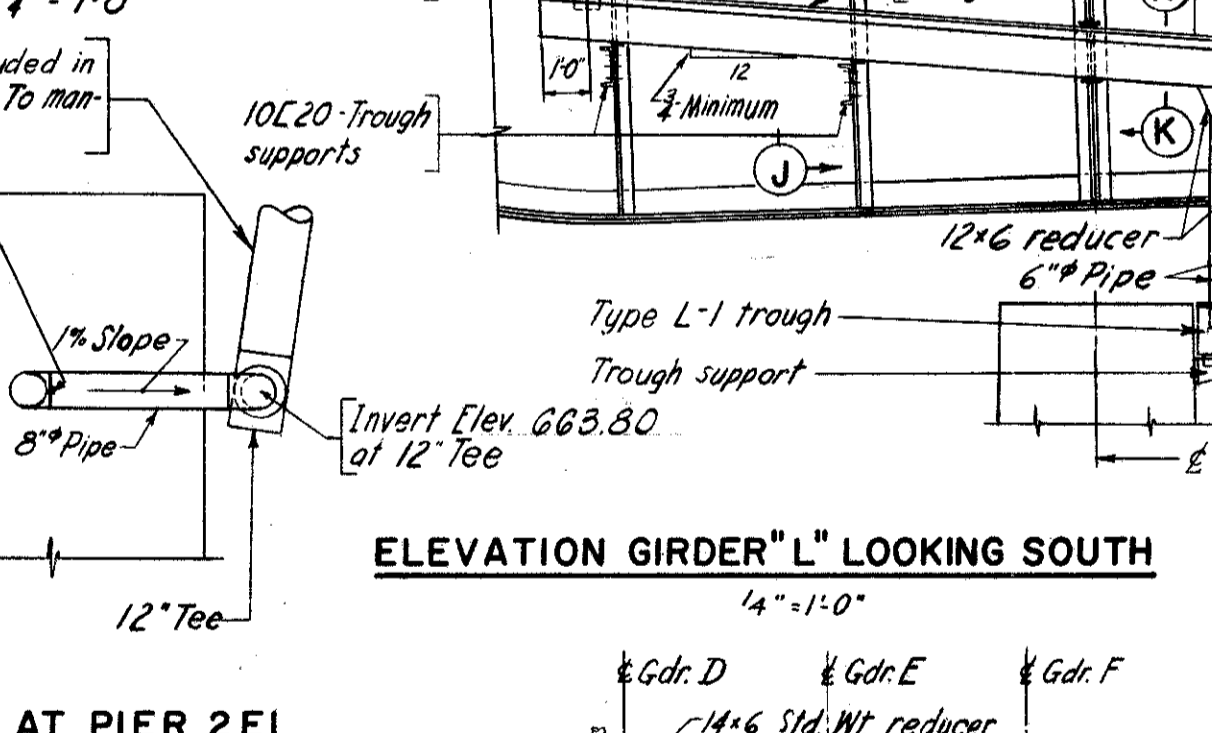
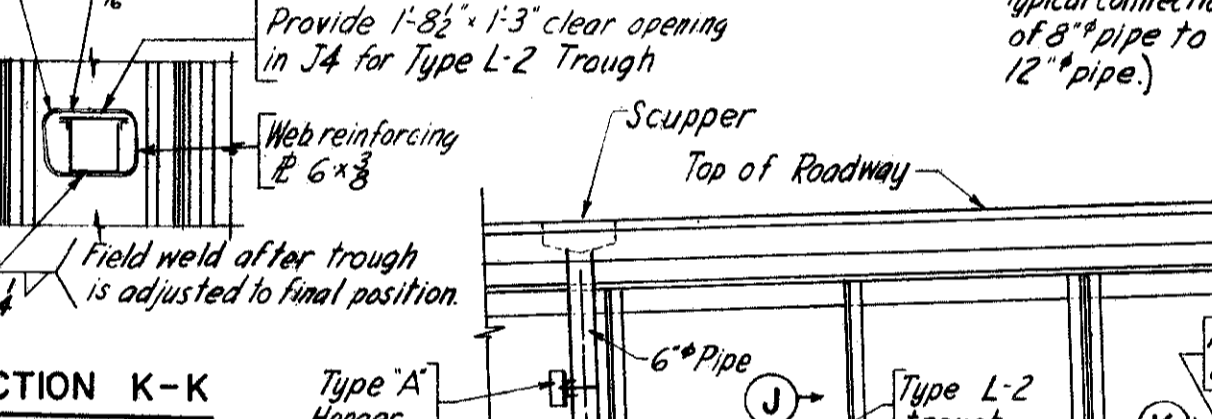
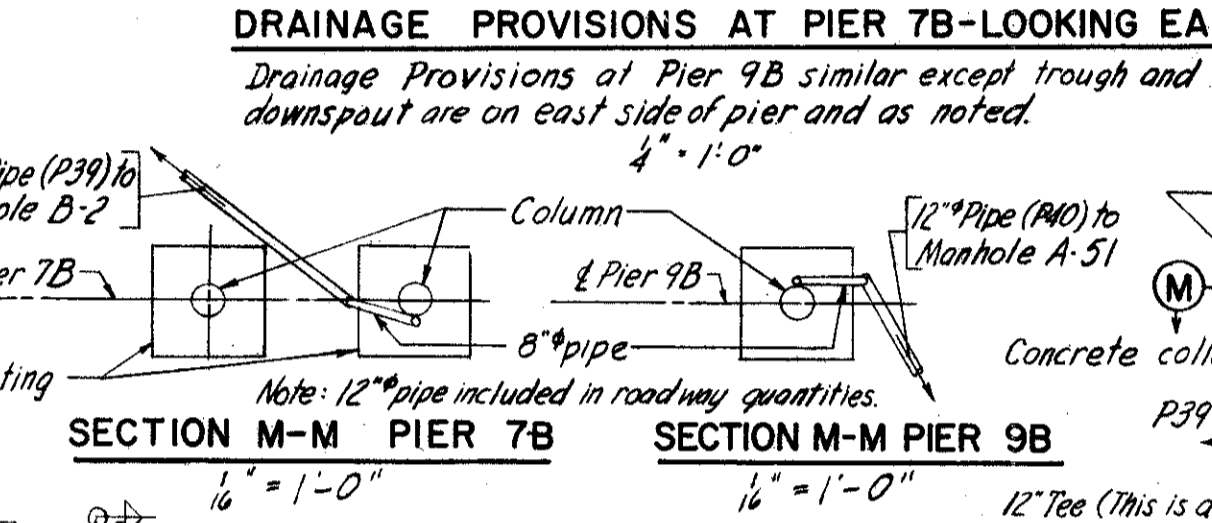
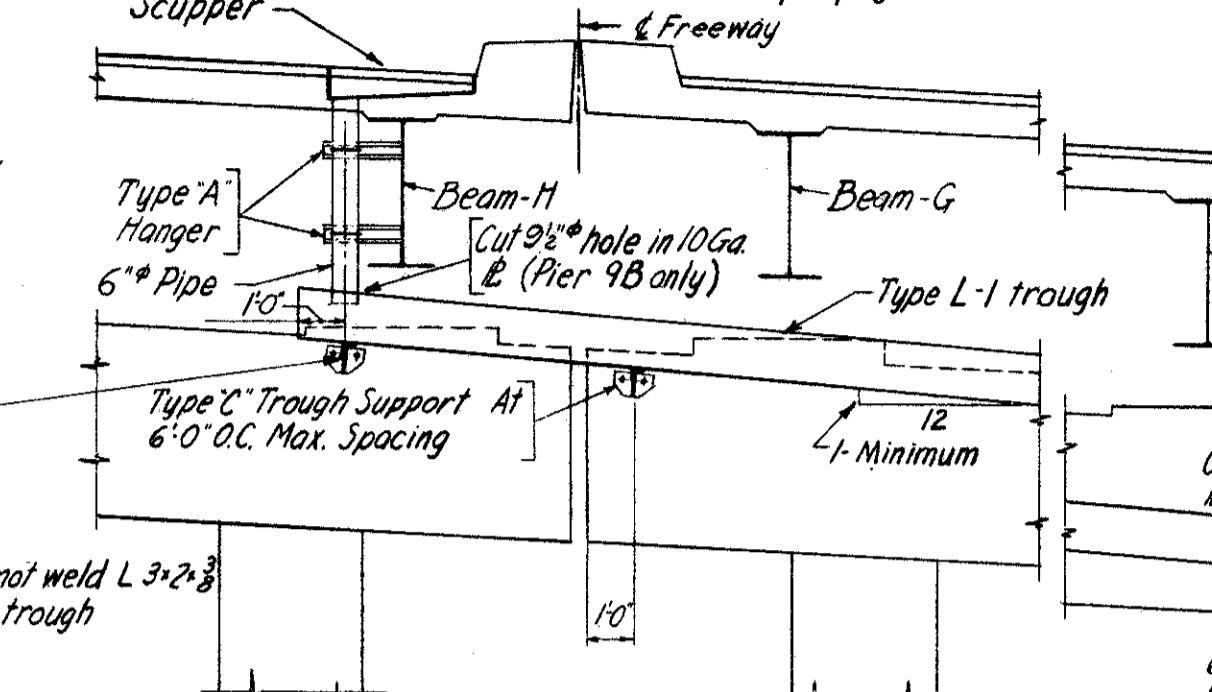
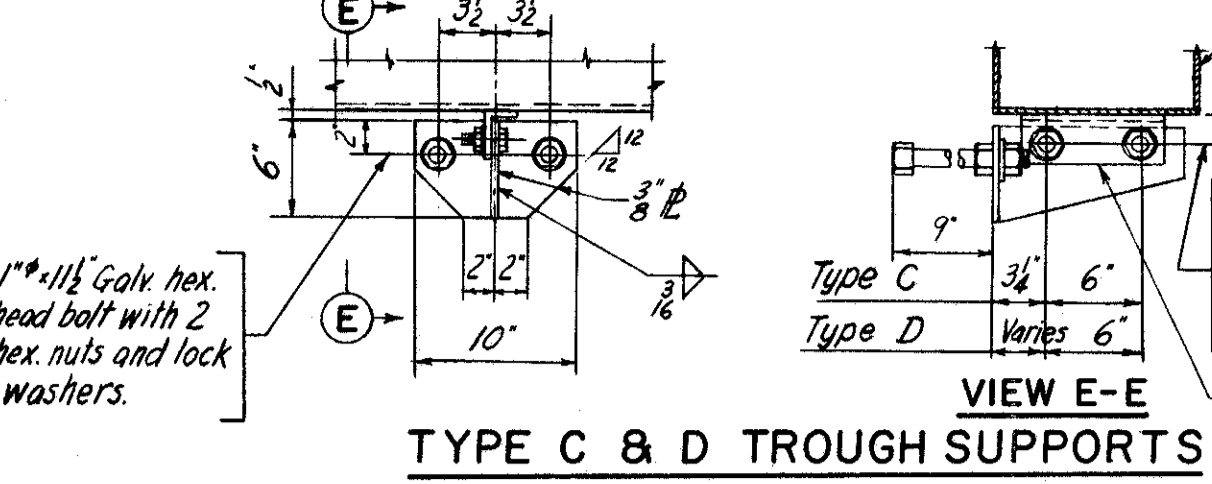
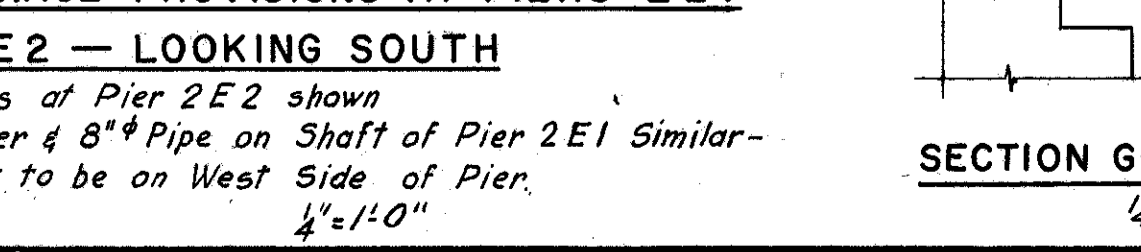
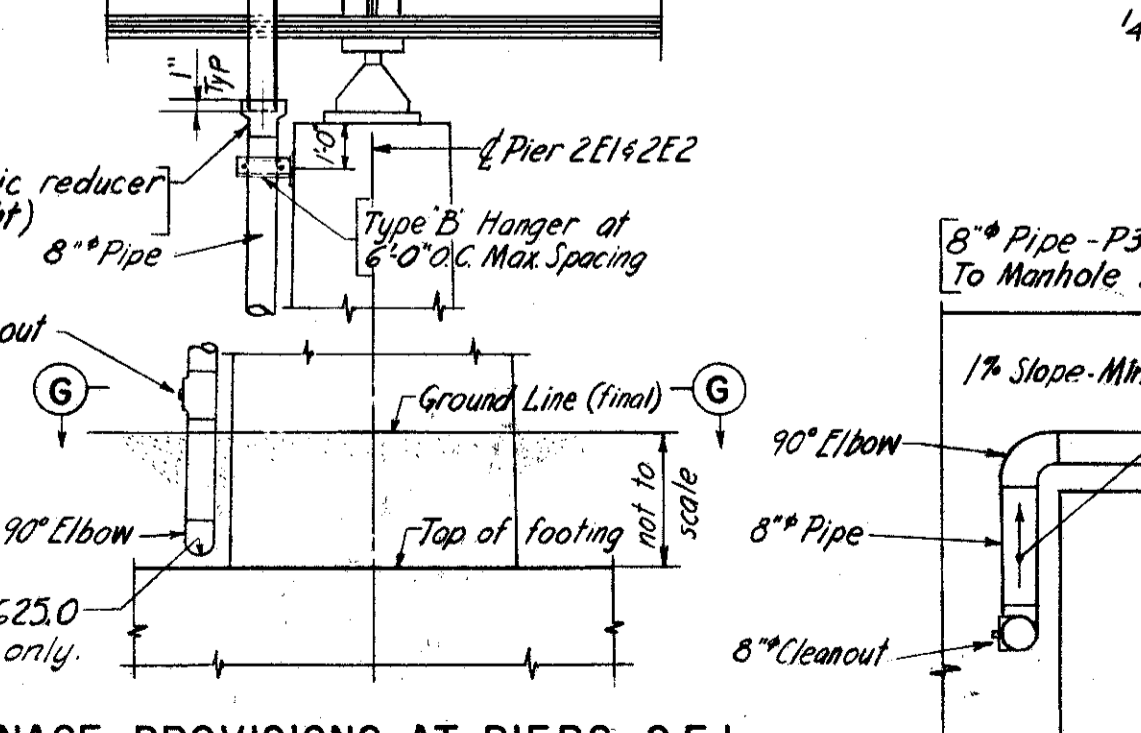
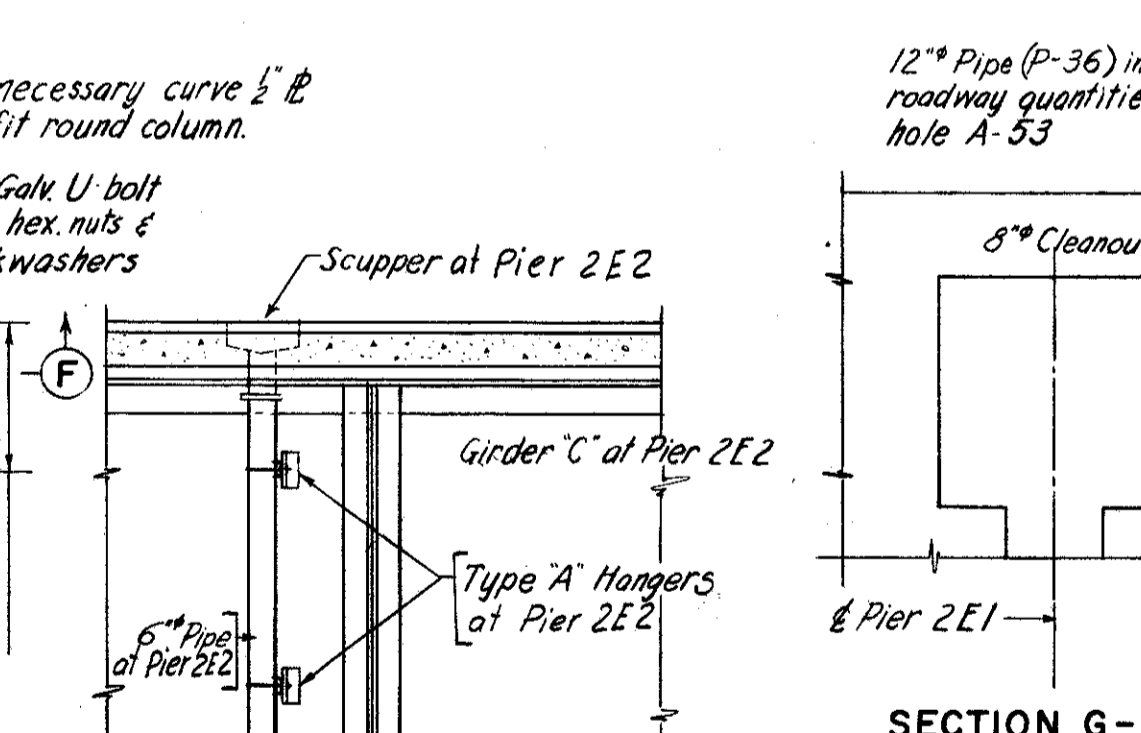
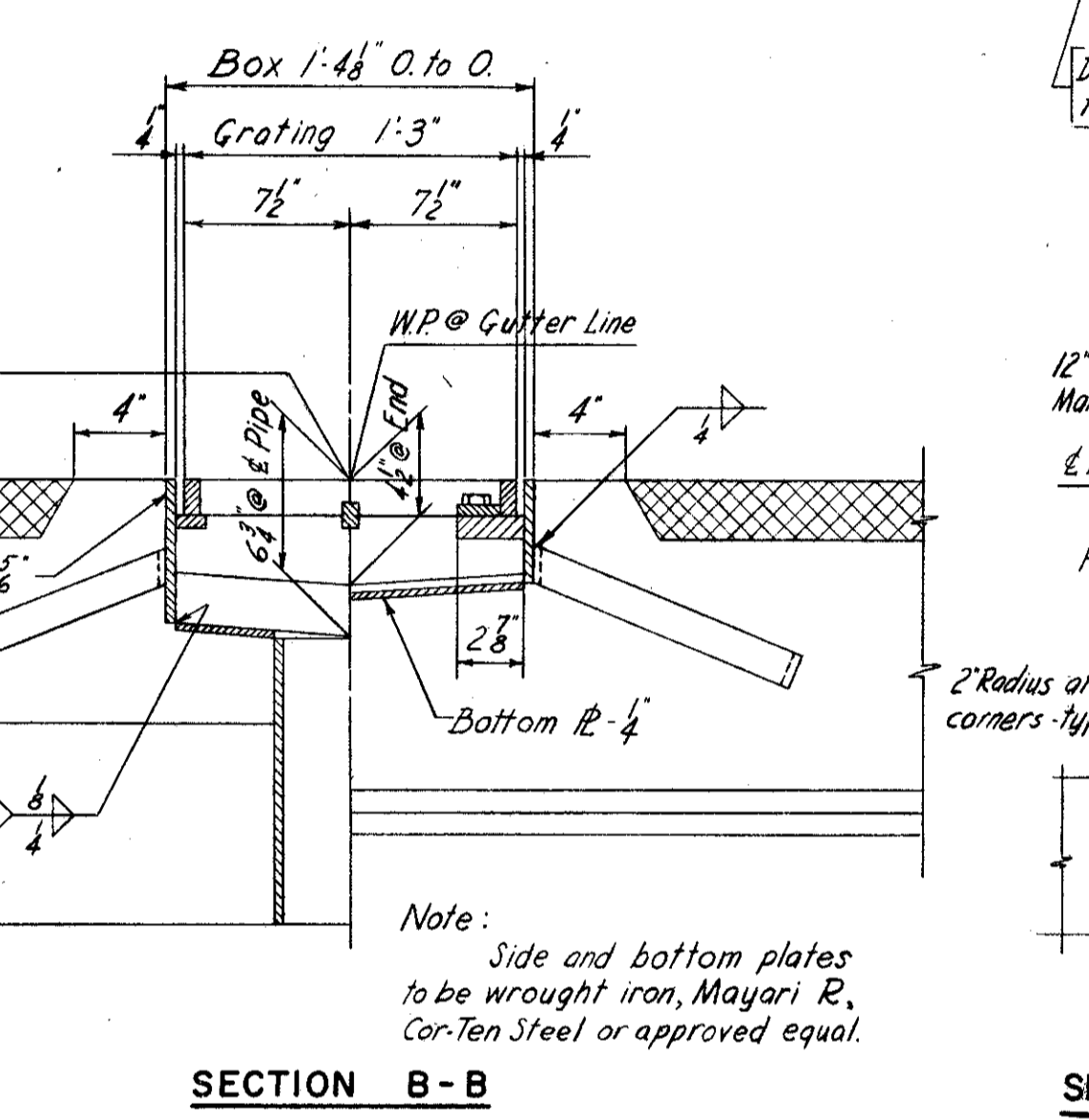
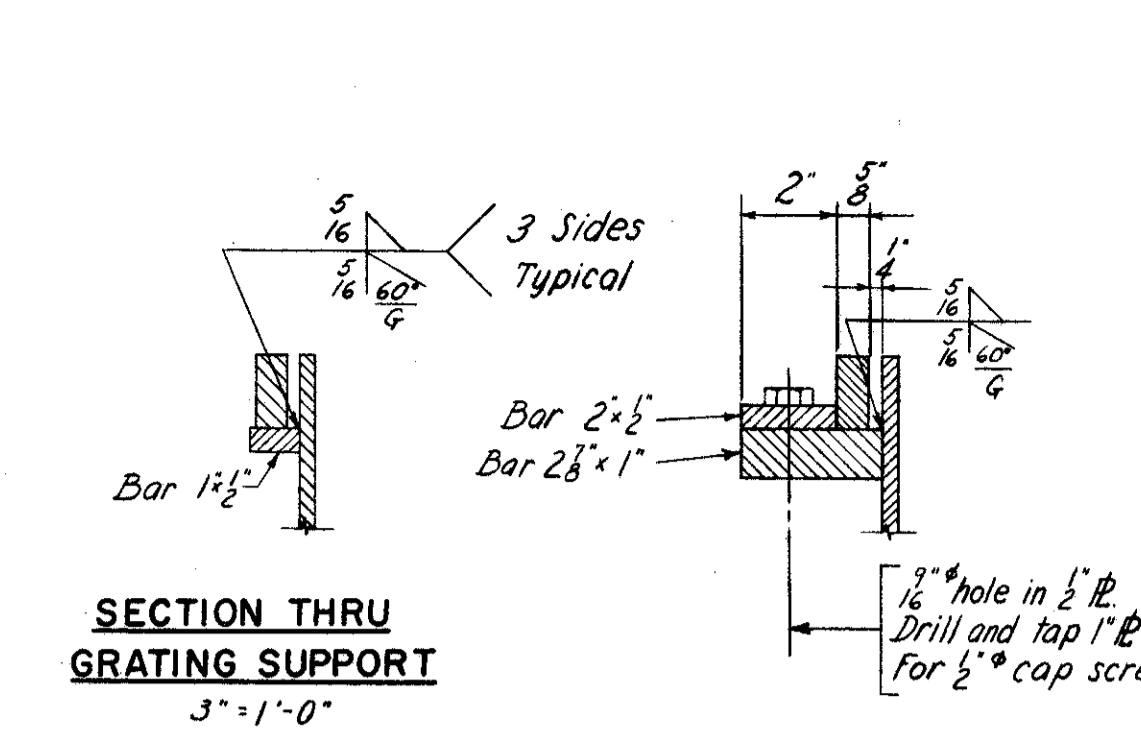
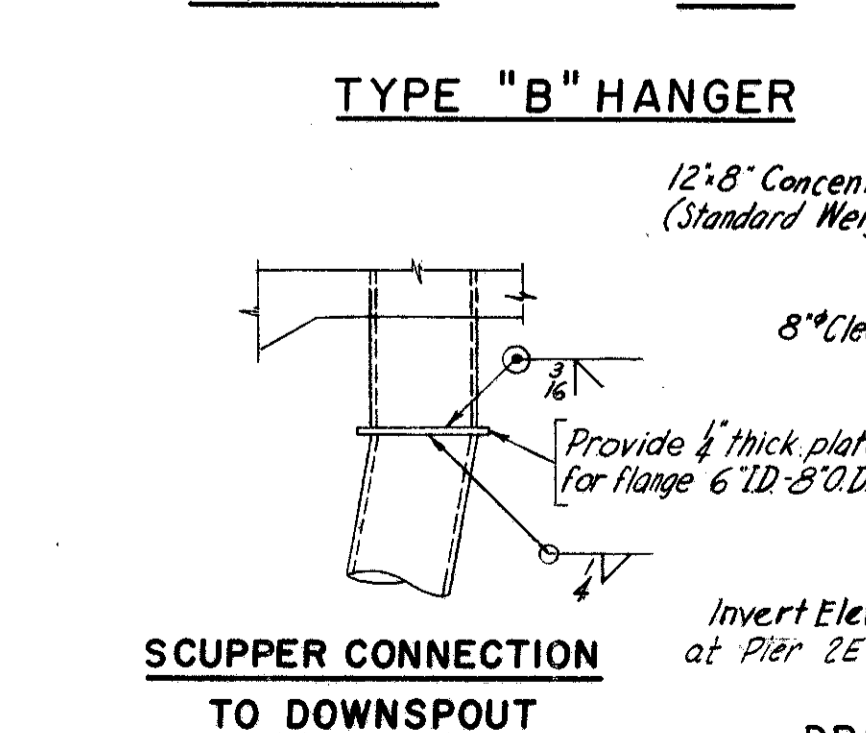
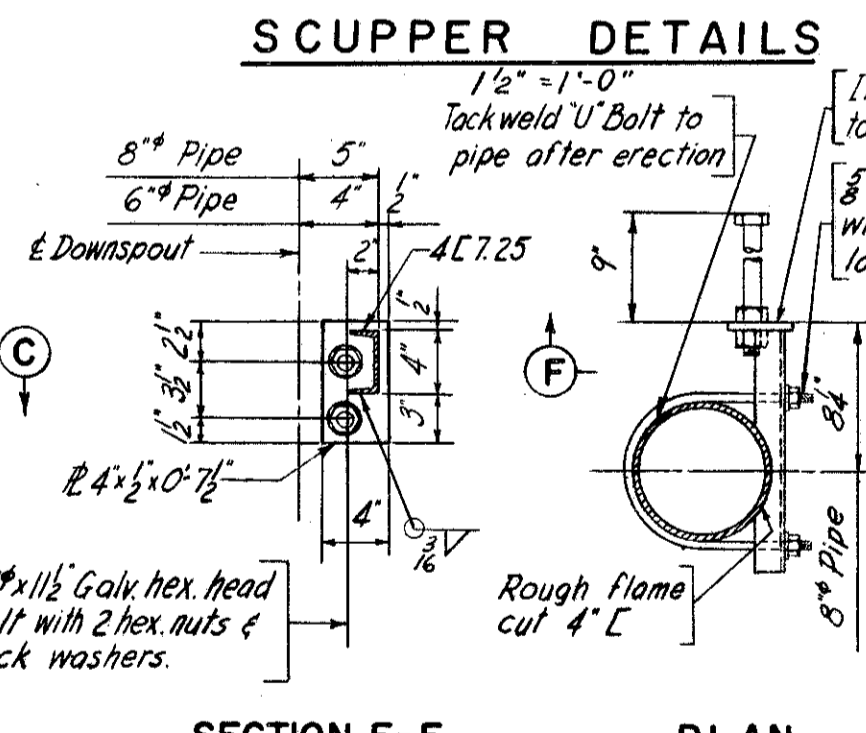
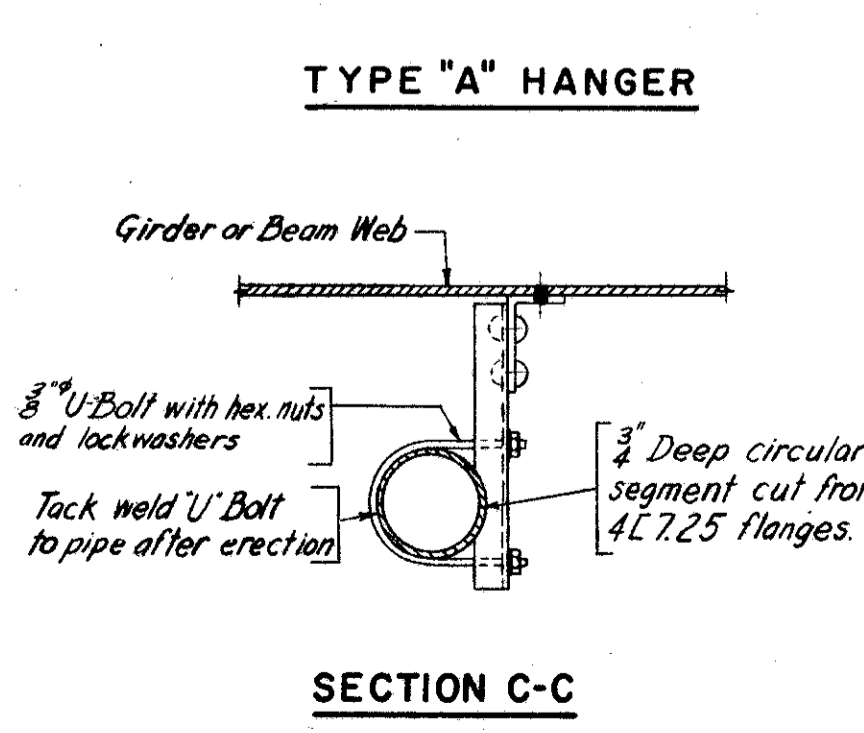
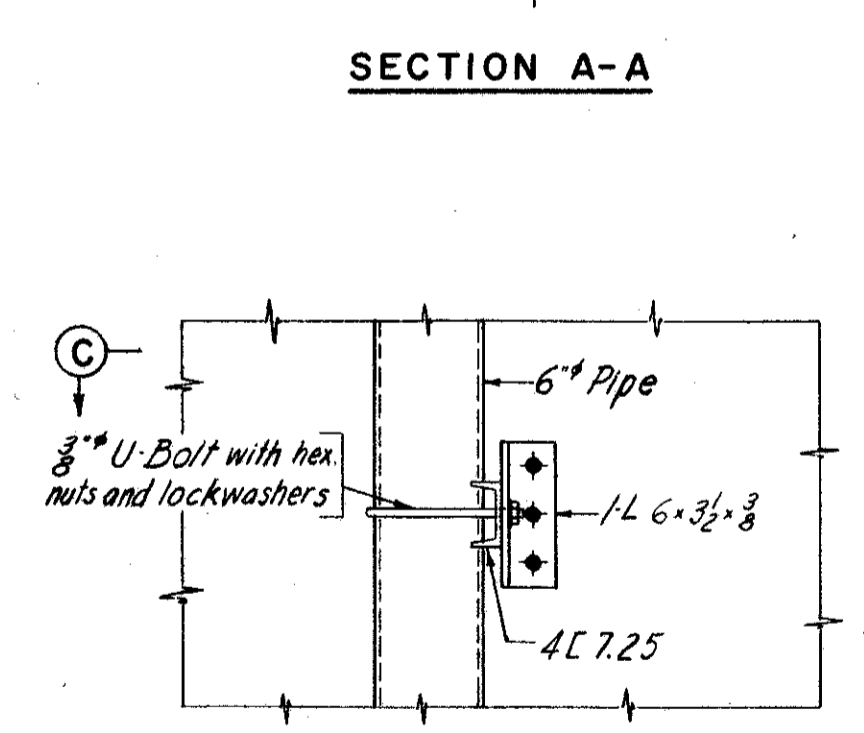
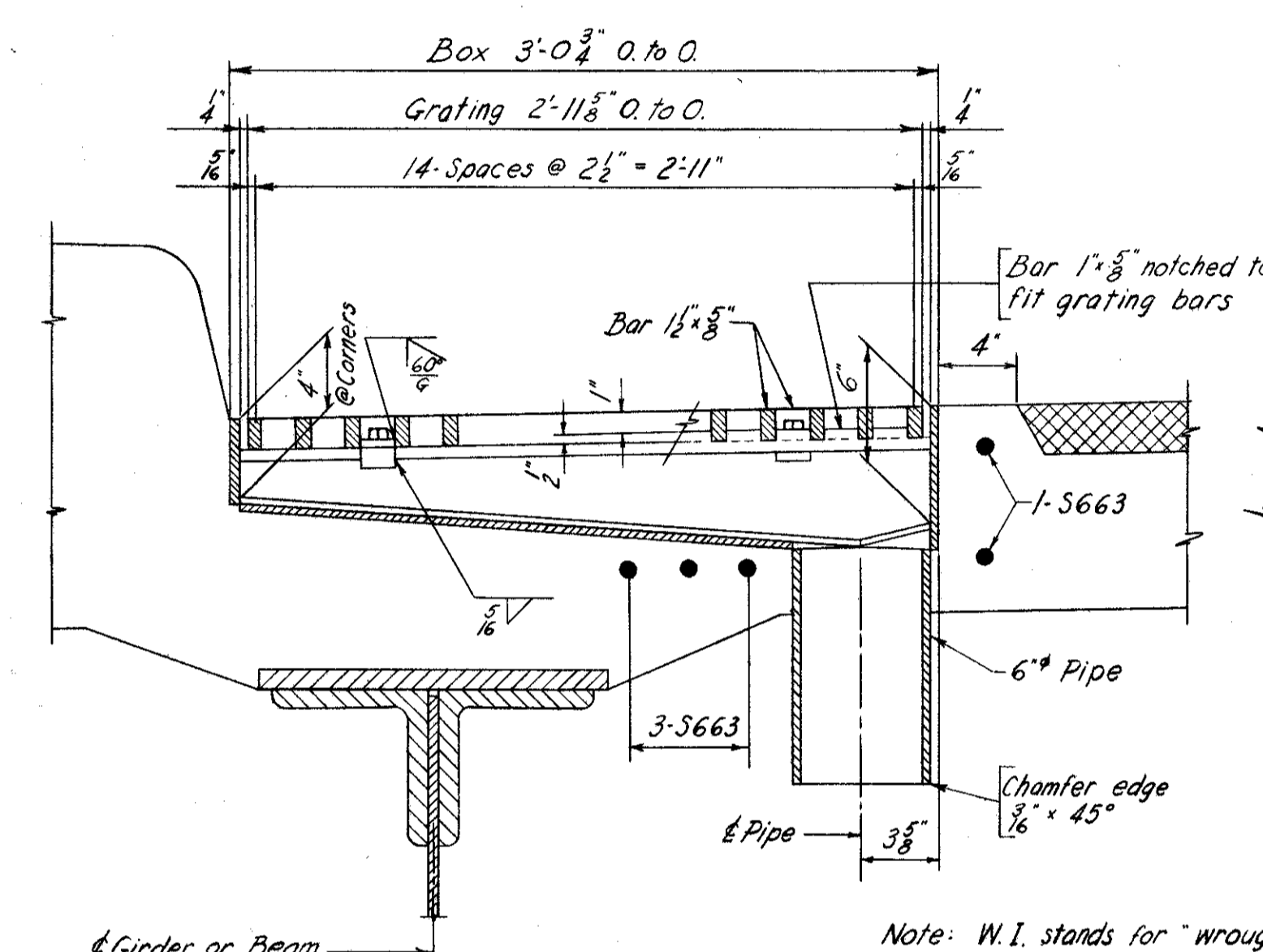
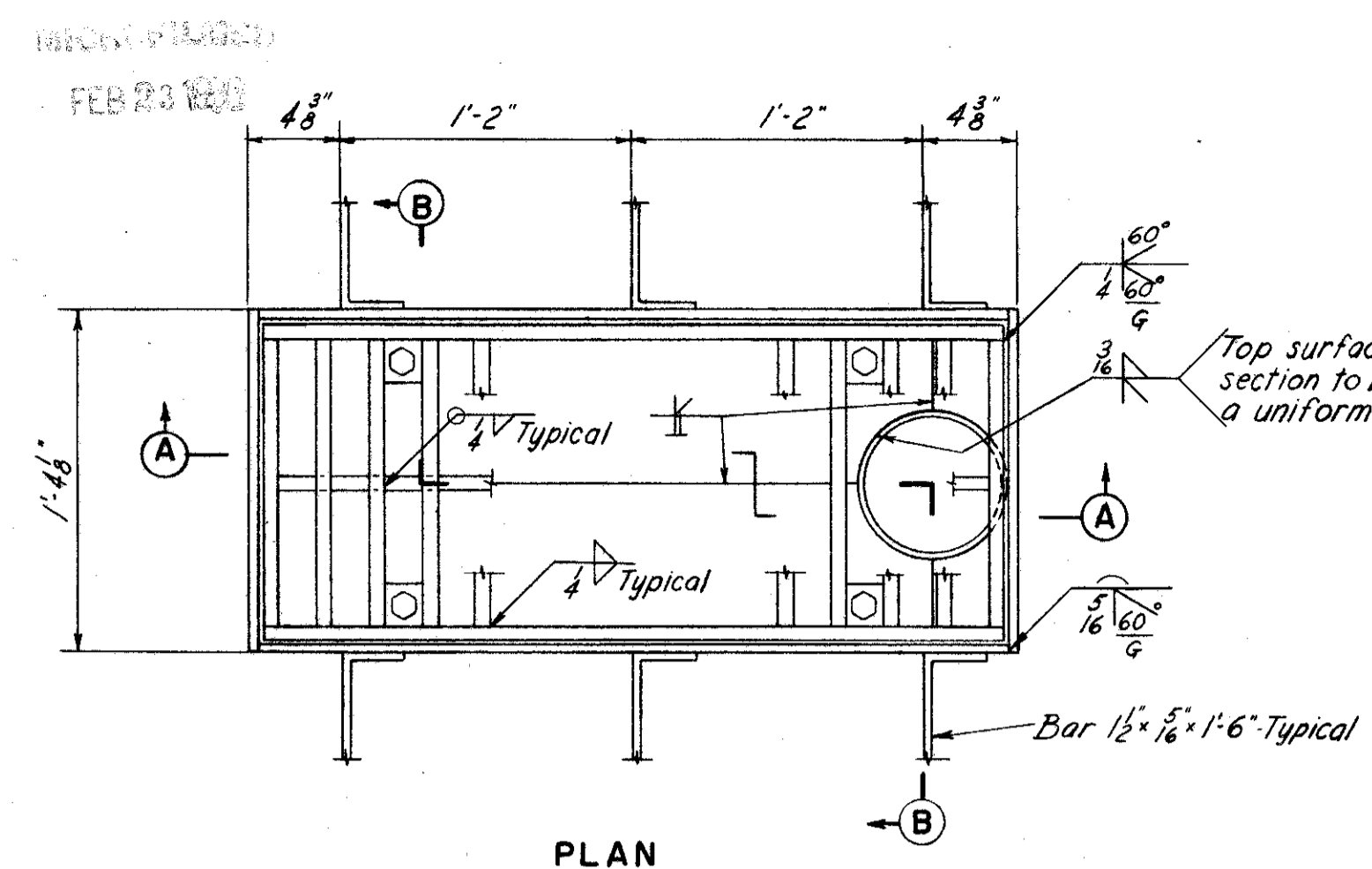
CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE IN E2 DATE 11-22-57
TRCD E.G. DATE 2-27-57
CKD L.W.H. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-107

**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)**



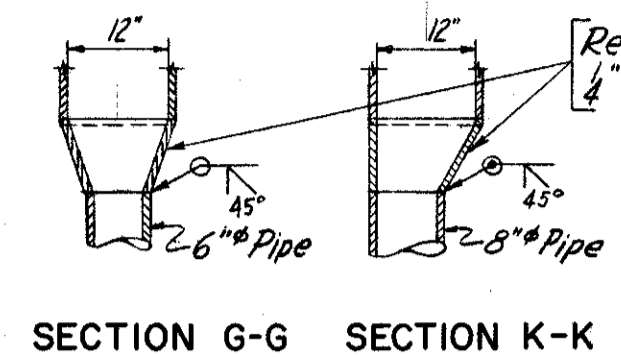
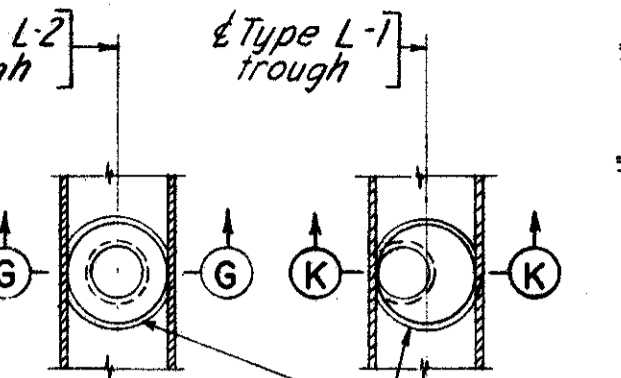
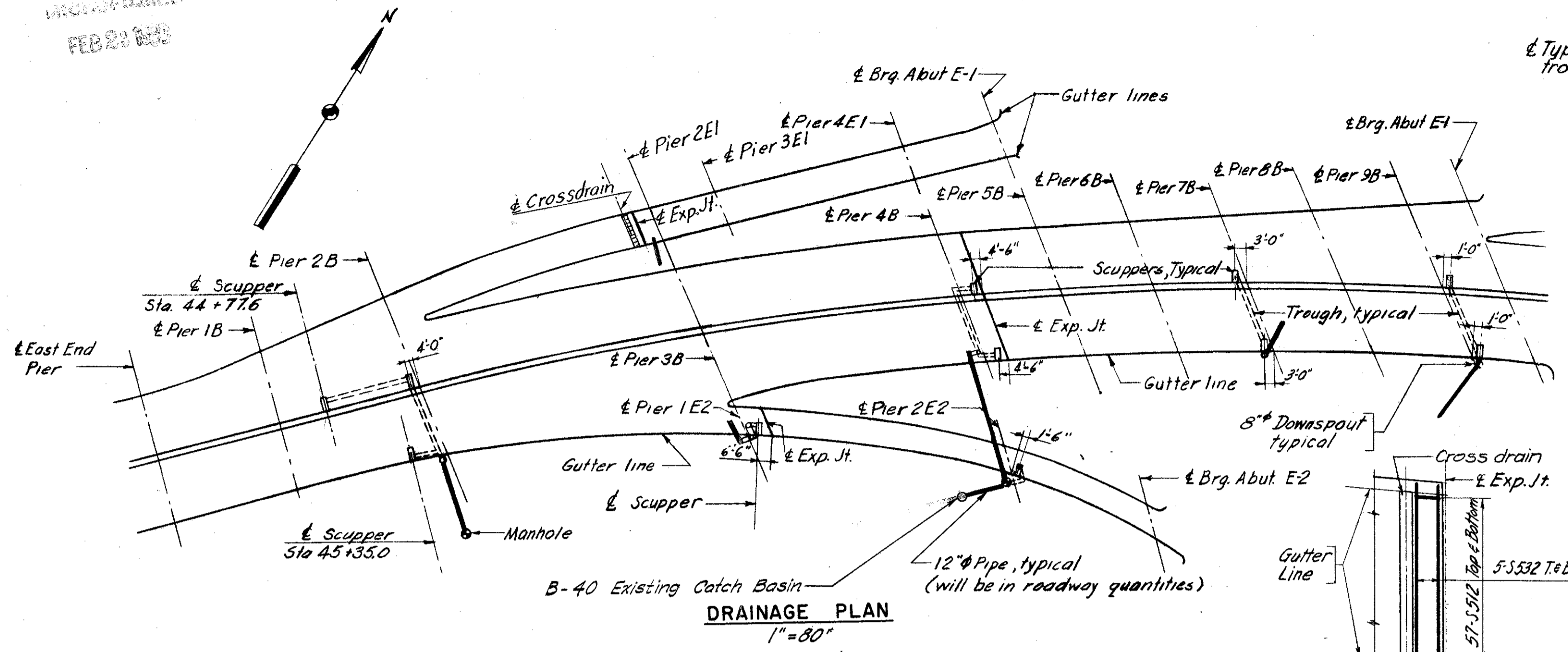
**U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
DRAINAGE DETAILS**

NOTES:
For drainage material and additional notes see Sh. 109
For detail of Crossframe J4 see Sh. 84

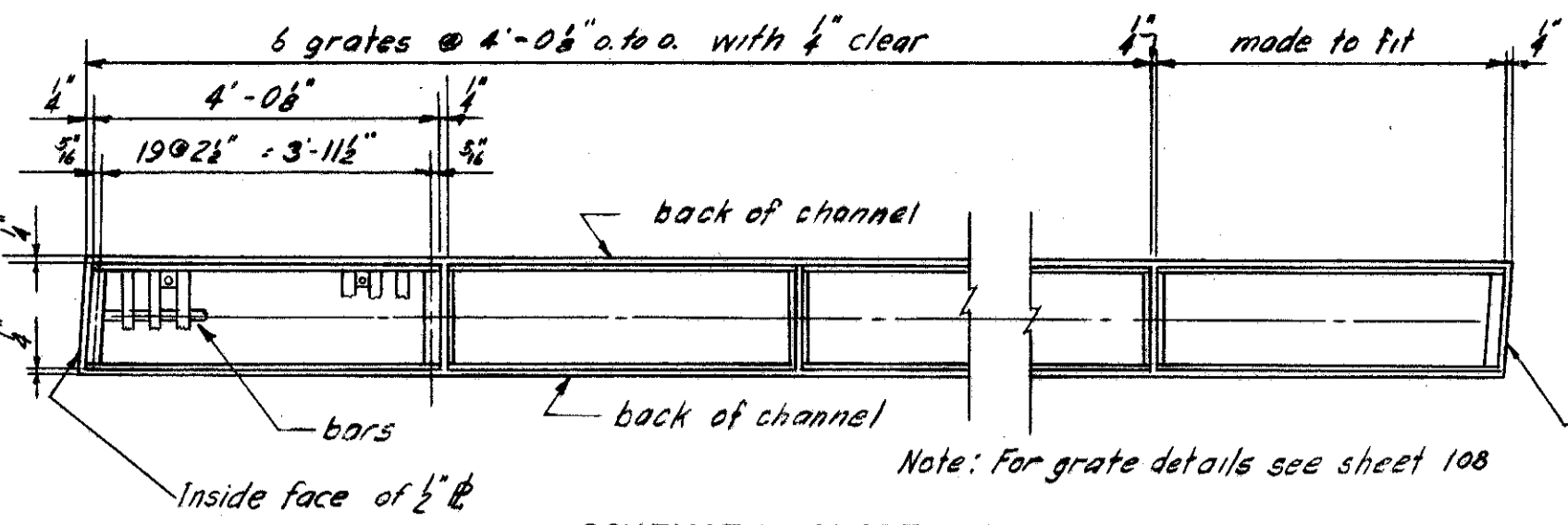
WORK STARTED
FEB 22 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	109 117
2	OHIO			

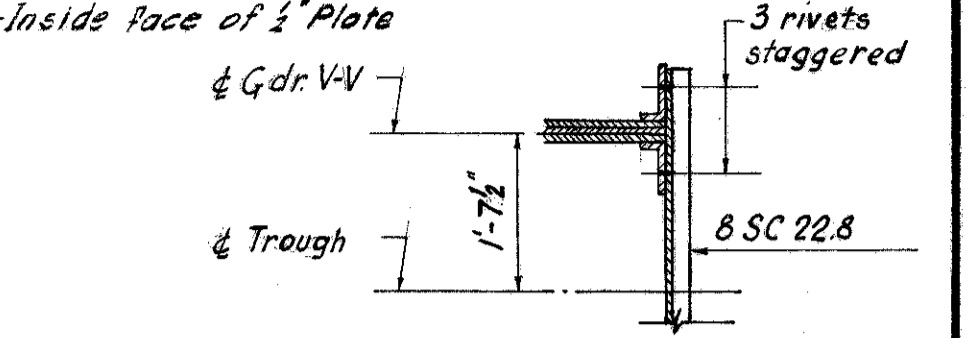
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)



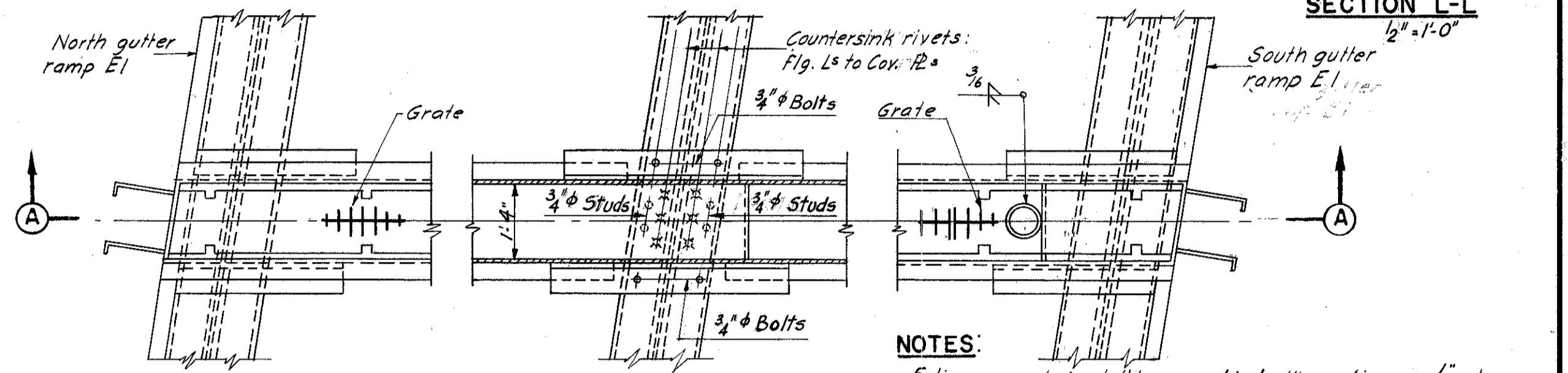
REDUCER DETAILS
1/2" = 1'-0"



SCHEMATIC GRATE LAYOUT

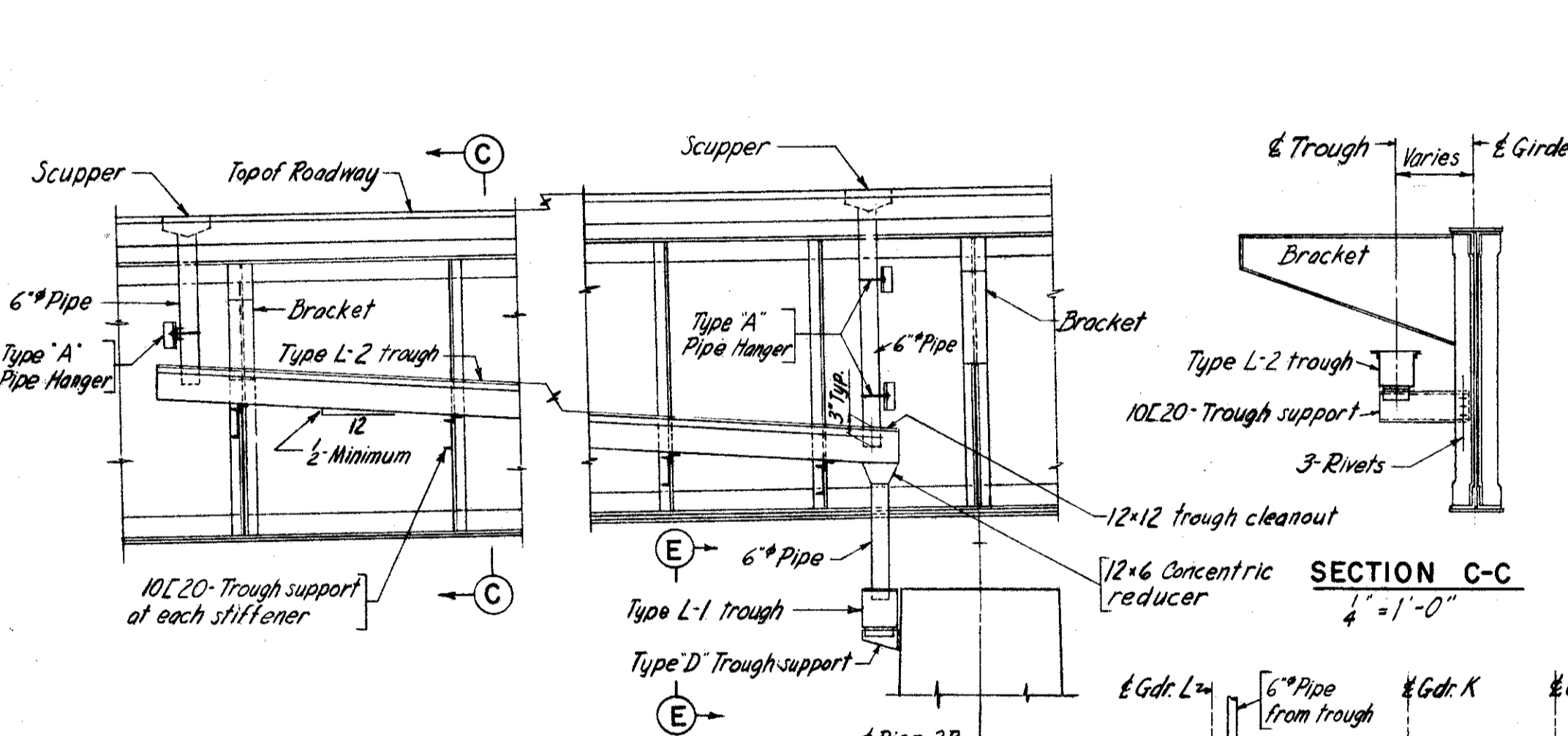


SECTION L-L
1/2" = 1'-0"



PLAN VIEW-CROSS DRAIN
1/2" = 1'-0"

NOTES:
Entire cross drain shall be assembled with continuous 1/4" shop weld and shall be galvanized after fabrication. Where 4/8" shims are specified, two additional 5/8" shims shall be furnished for use in field adjustment. For detail of drainage provisions at Pier 2E1 see Sh. 10B.



SECTION C-C
1/4" = 1'-0"

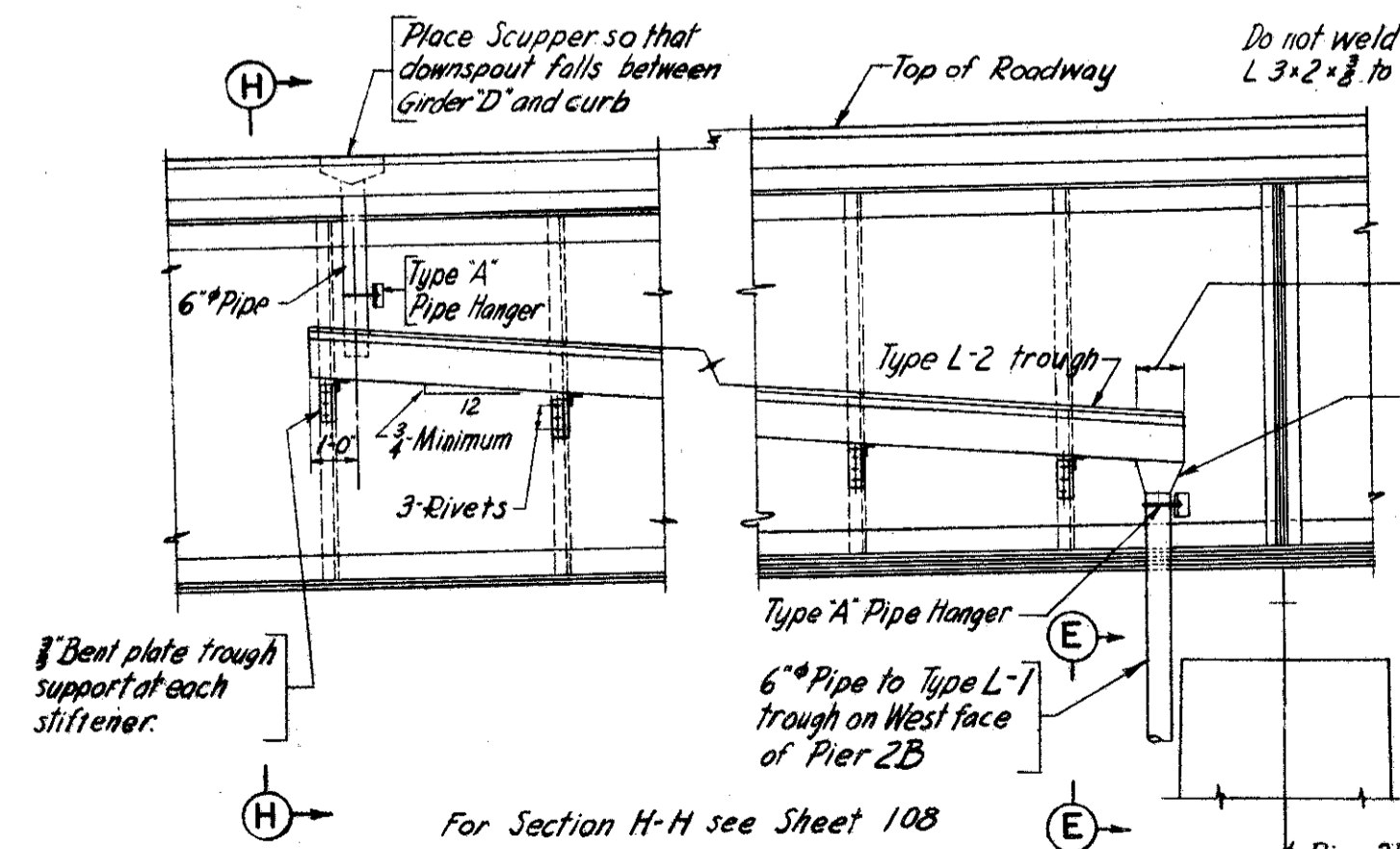
SECTION B-B
1/2" = 1'-0"

DETAILS OF CROSS DRAIN AT RAMP E1
1/2" = 1'-0"

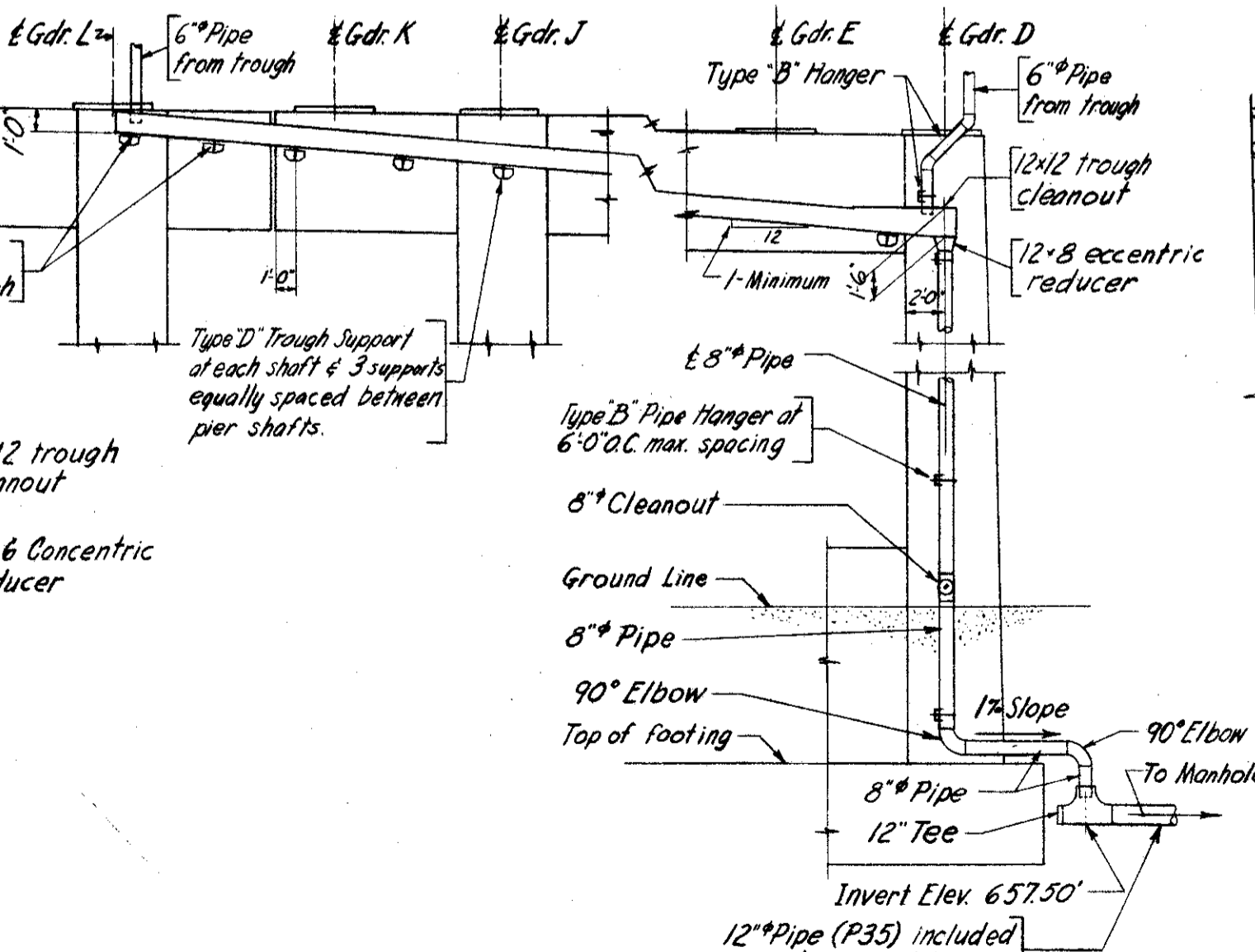
SECTION A-A
1/2" = 1'-0"

SECTION F-F
1/2" = 1'-0"

ELEVATION GIRDER "L" LOOKING NORTH
1/4" = 1'-0"

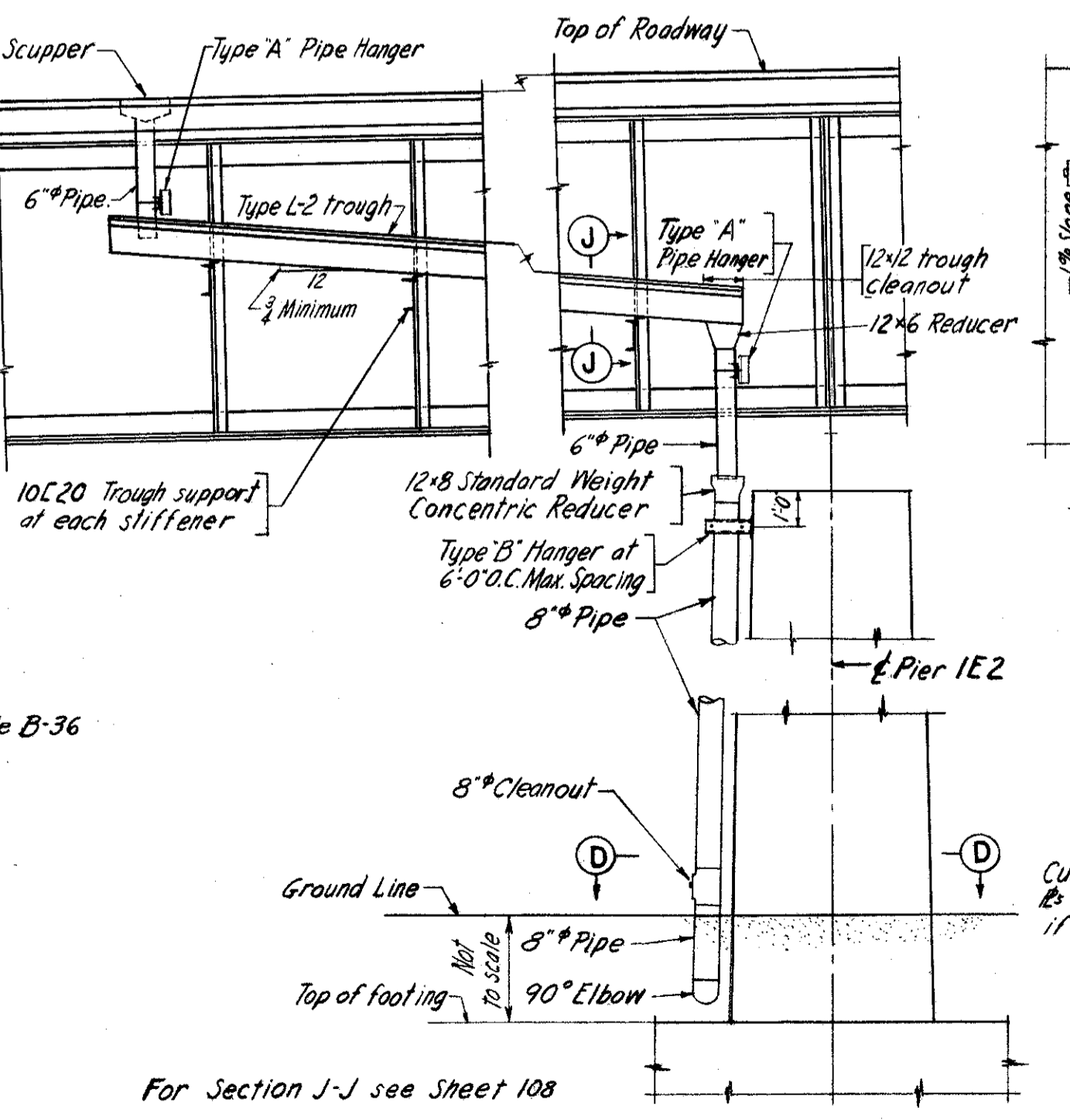


ELEVATION GIRDER "D" LOOKING NORTH
1/4" = 1'-0"

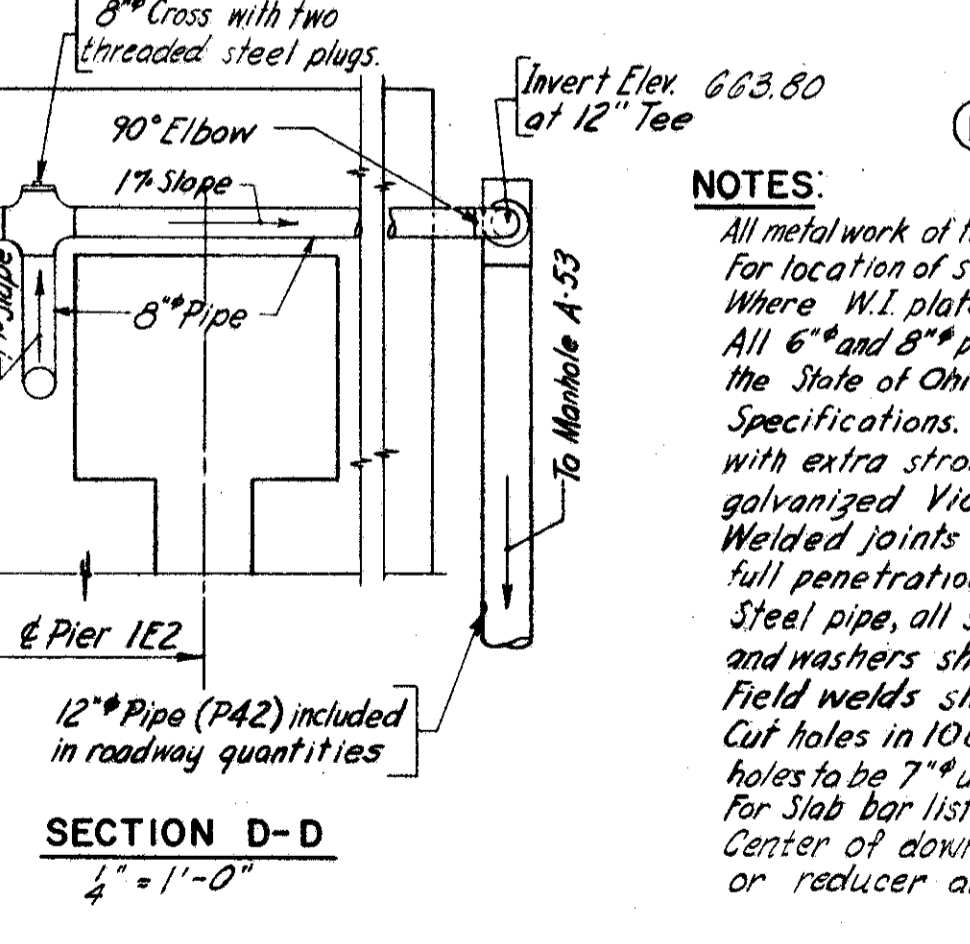


VIEW E-E
1/8" = 1'-0"

DRAINAGE PROVISIONS AT PIER 2B-LOOKING EAST
1/8" = 1'-0"



ELEVATION GIRDER "S" LOOKING SOUTH
1/4" = 1'-0"



SECTION D-D
1/4" = 1'-0"

PLAN-TROUGH CLEANOUT
3/8" = 1'-0"

NOTES:
All metal work of the drainage system will be included in Item S-29. For location of sewers and manholes see Sh. 22. Where W.I. plates are called for, Magari R or Cor Ten steel may be used. All 6" and 8" pipes shall be Standard Weight pipe in accordance with the State of Ohio Department of Highways Construction and Material Specifications. They shall be wrought iron or hot dipped galvanized steel, with extra strong (except as noted) weld type seamless steel fittings or galvanized Victrolite couplings or approved equal. Welded joints of all pipes and fittings to be single bevel butt welds - full penetration with 3/8" root opening and 45° included angle. Steel pipe, all steel fittings, all pipe hangers, trough supports, nuts, bolts and washers shall be hot dipped galvanized after fabrication. Field welds shall be field galvanized by an approved method. Cut holes in 10 Ga. R of types L-1 and L-2 troughs for 6" pipes - holes to be 7" unless otherwise noted. For slab bar list see Sh. 103 & 104. Center of downspout shall be centered with center of hole in trough or reducer at normal temperature.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50
DRAINAGE DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

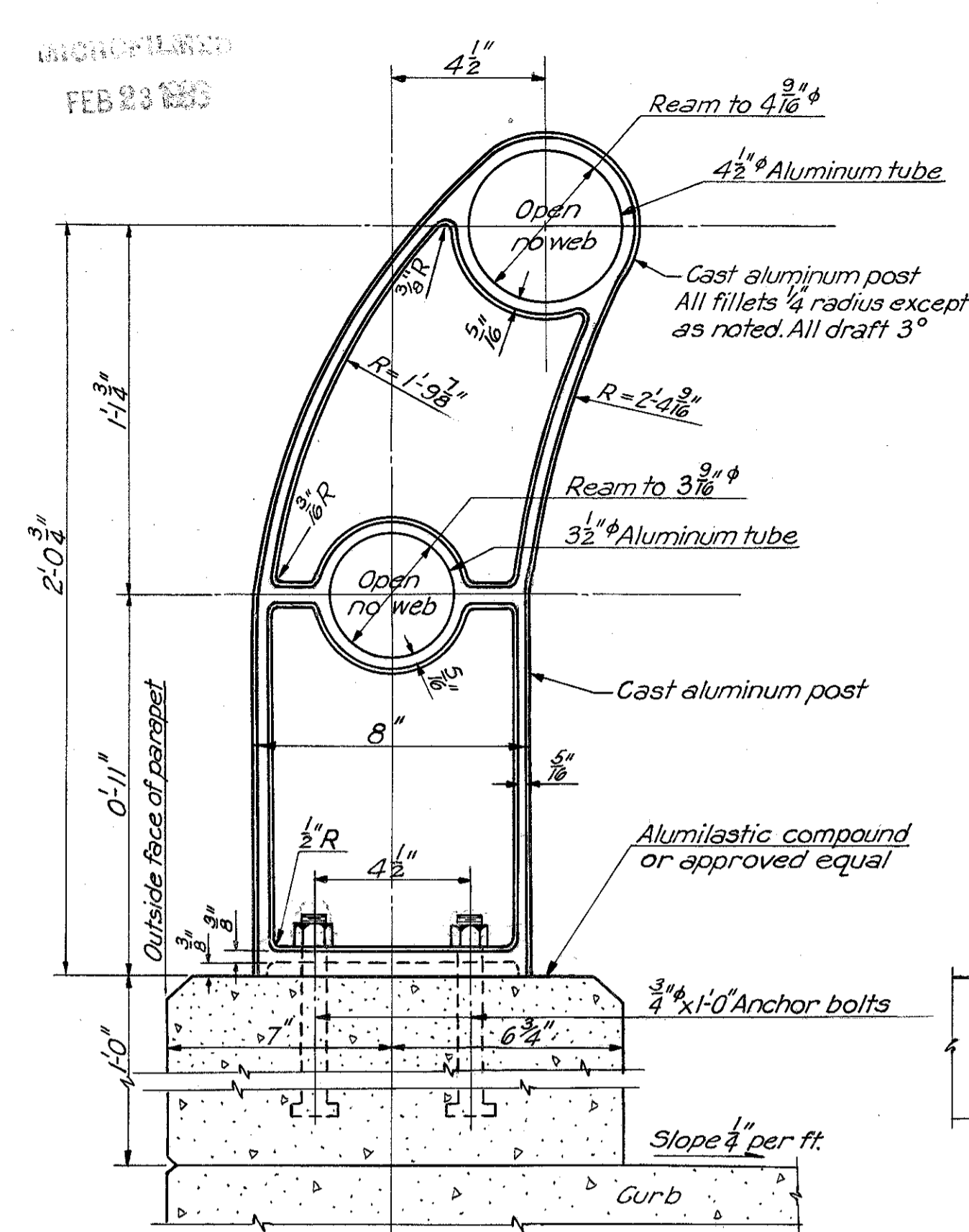
SCALE As Noted
MADE DATE 1-30-57
TRCD DATE 2-1-57
CND DATE 2-22-57

HOWARD, NEEDLES, TAMMEN & BERENDSON
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-109

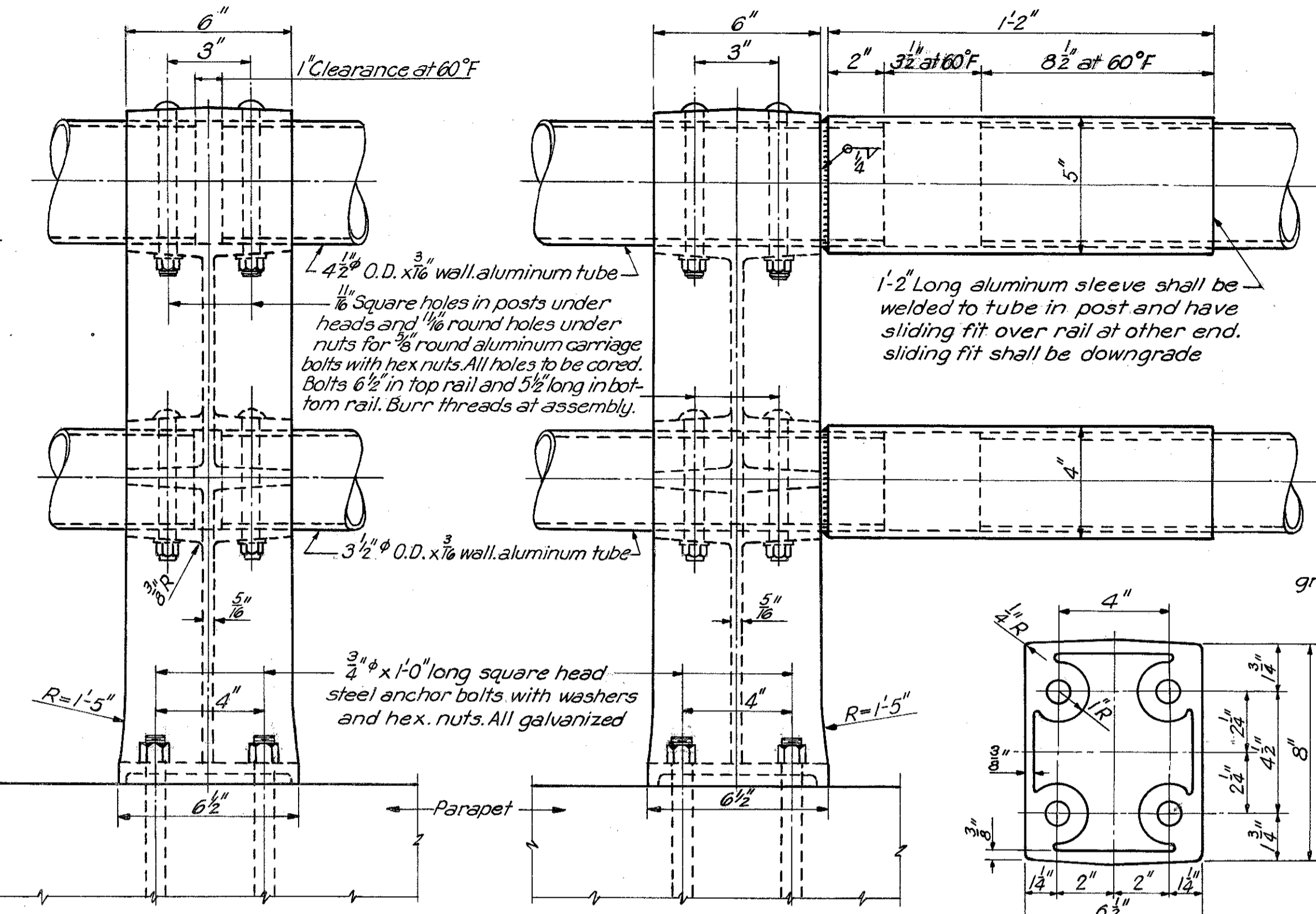
UNION PLANET
FEB 23 1956

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	110 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42 - (17.43-18.02)



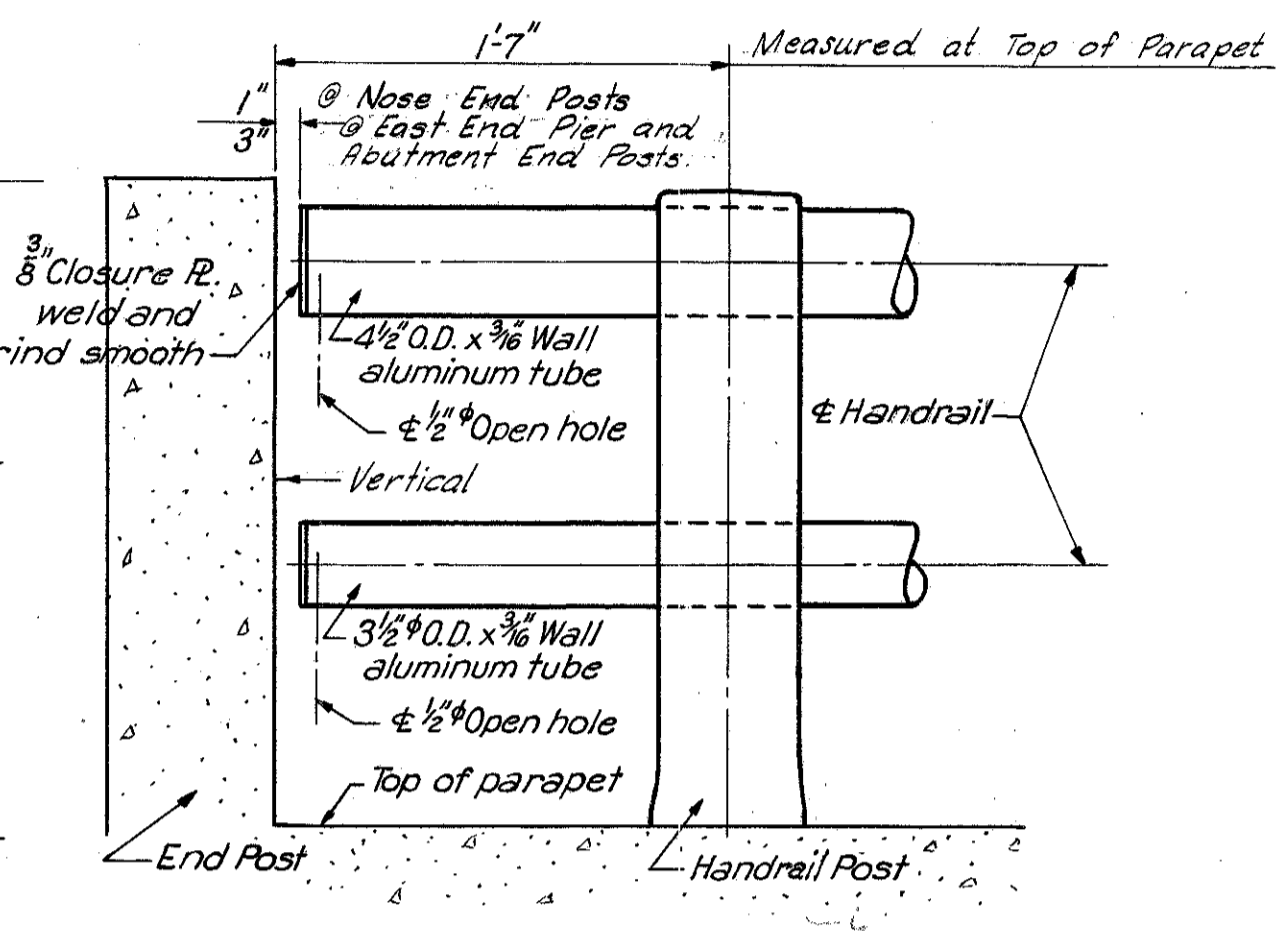
TYPICAL HANDRAIL POST



POST ELEVATION

HANDRAIL POST AT EXPANSION JOINT

At each expansion joint use detail shown above on one side of joint and typical post on other side



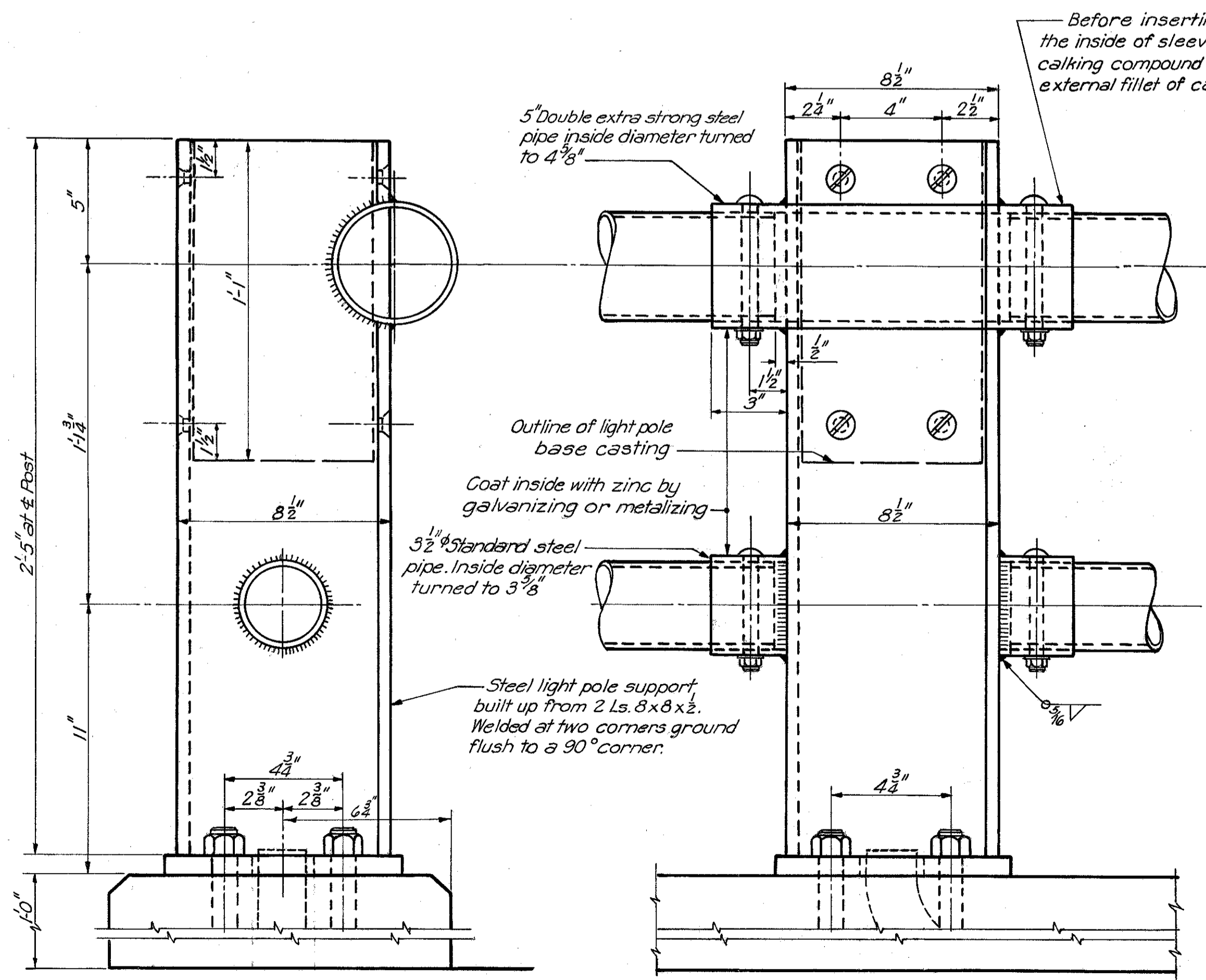
END OF HANDRAIL

Scale: 1 1/2"=1'-0"

Notes:
For aluminum refer to Supplemental Specifications No. 5-114.
Railing shall be fabricated in lengths equal to one post space. see Sheet 105, 106 & 107 for exact spacing.
Bolt holes in tubes shall be 1/16" at one end. Other end shall have slotted holes 1/16" x 1" except rails having expansion sleeve shall have 1/16" holes both ends. Bolts to be centered in slots at 60°F.
Aluminum washer shims may be used between parapet and post base to align posts. Maximum thickness shall be 1/8". Space below post base plate shall be thoroughly calked with Aluminum-impregnated calking compound.
Handrail posts shall be set normal to curb grade and tubes shall parallel curb grade.
Light pole supports shall be set vertical. For lighting details see Sheet III.

TYPICAL HANDRAIL DETAILS

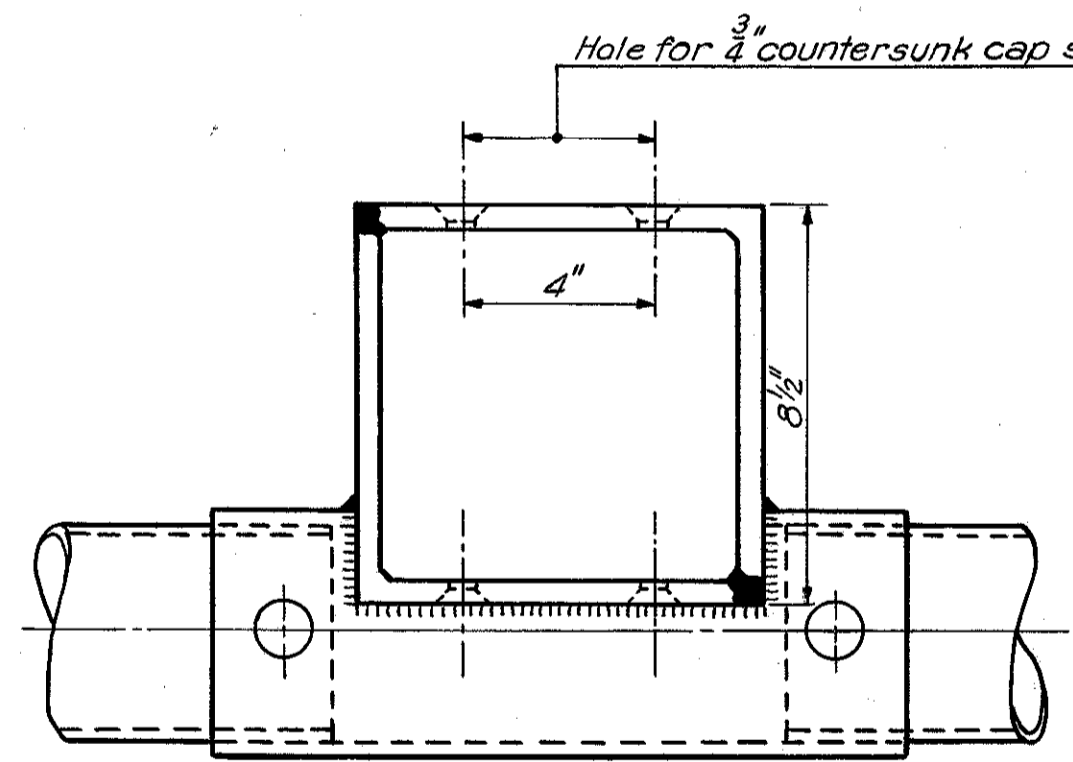
Scale: 3"=1'-0"



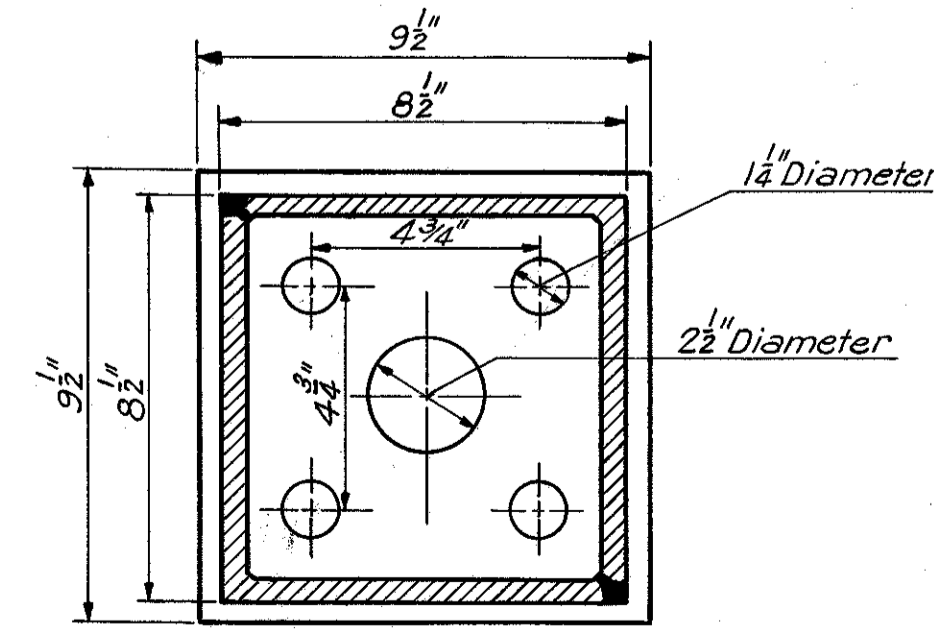
LIGHT POST SUPPORT

Scale: 3"=1'-0"
No. required = 34

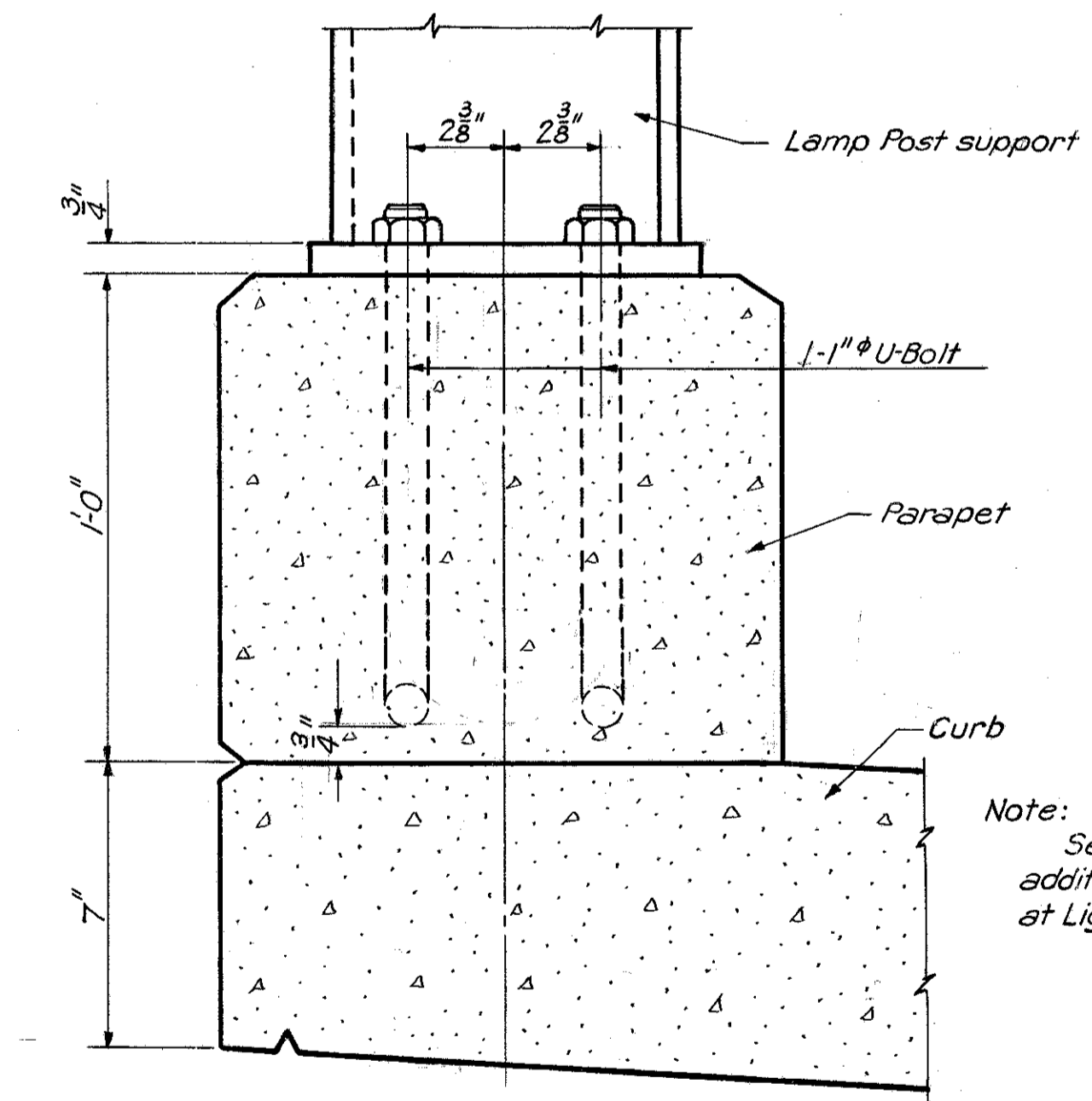
(For details not noted see Typical Handrail Post)



TOP PLAN



BASE PLAN



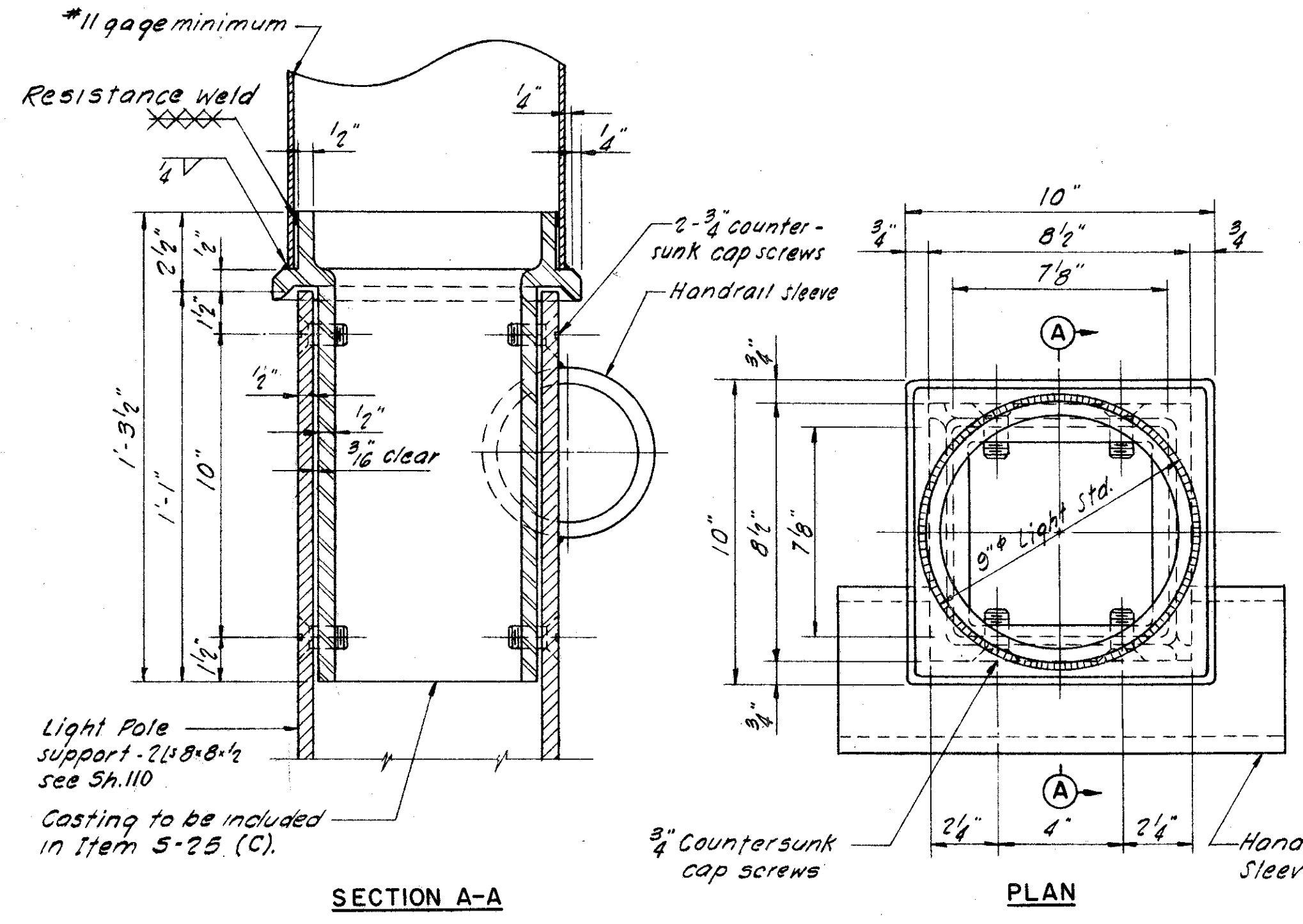
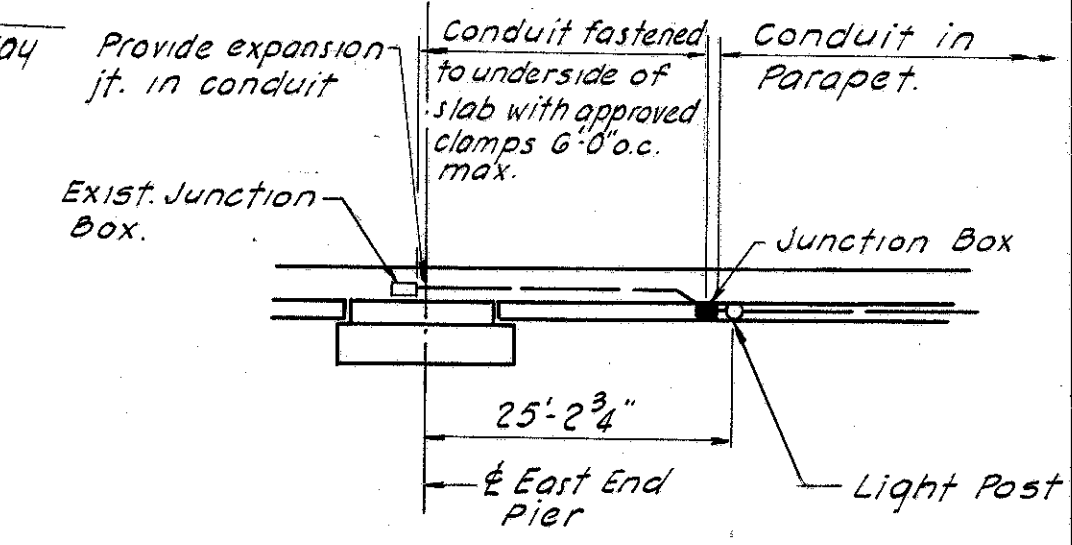
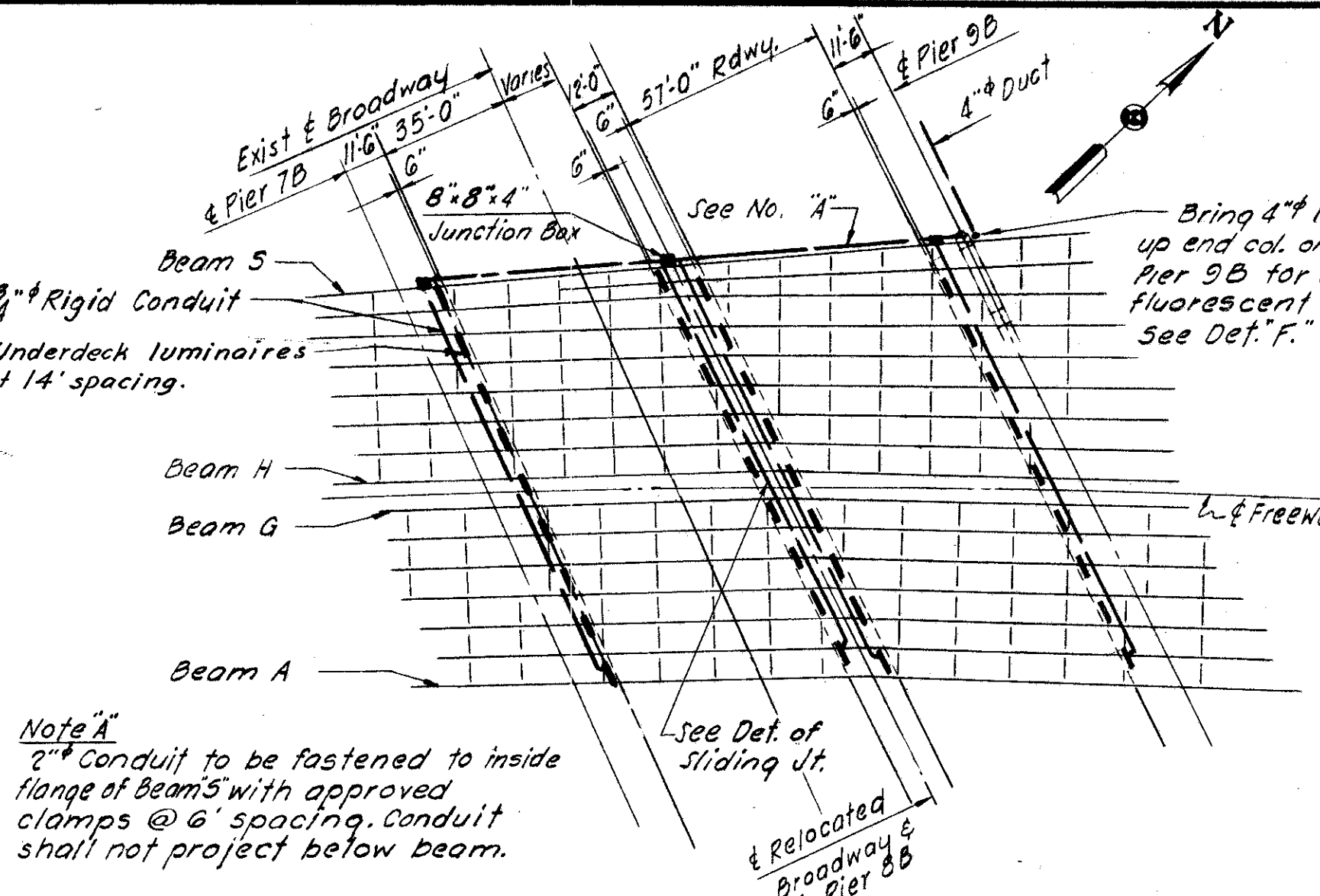
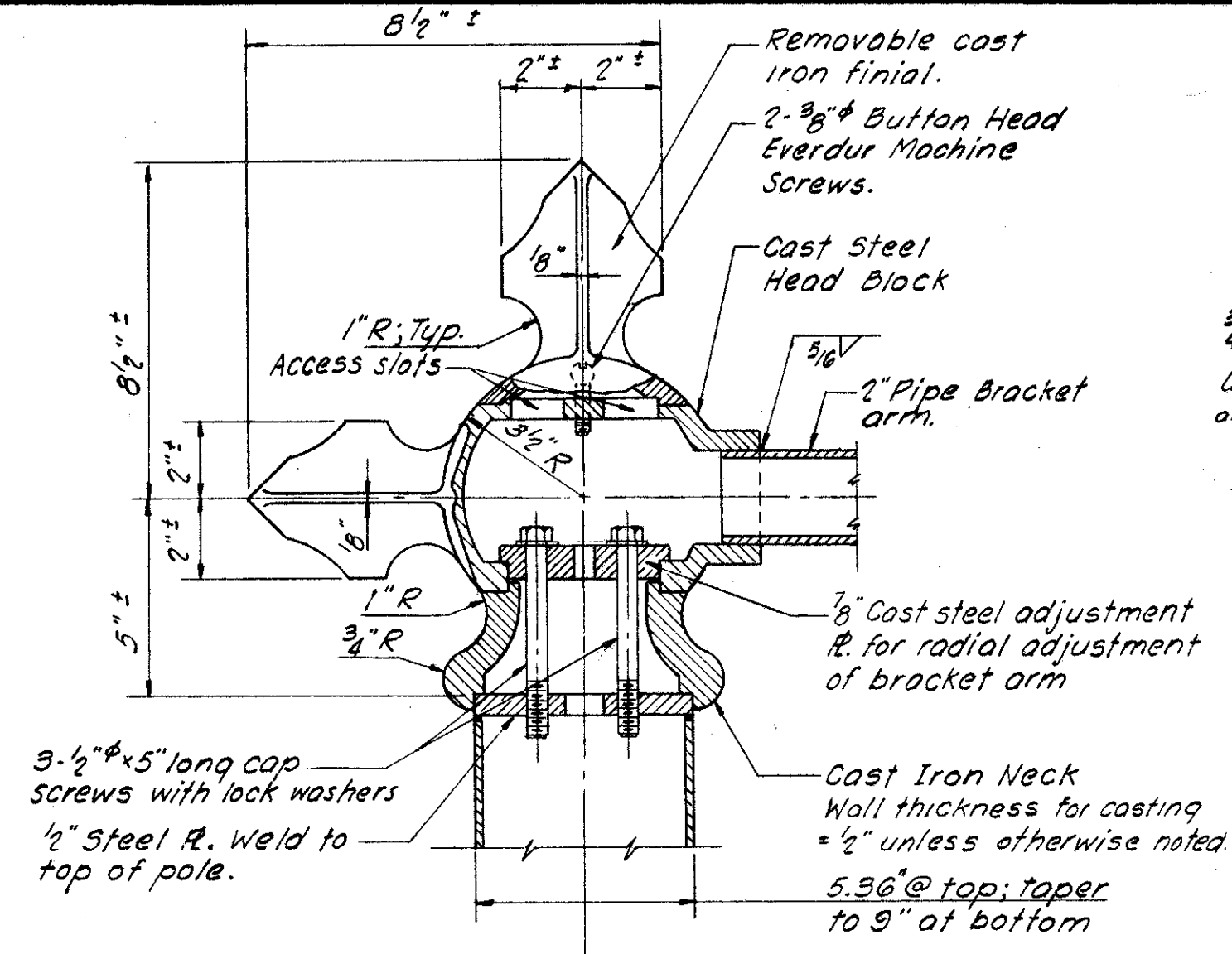
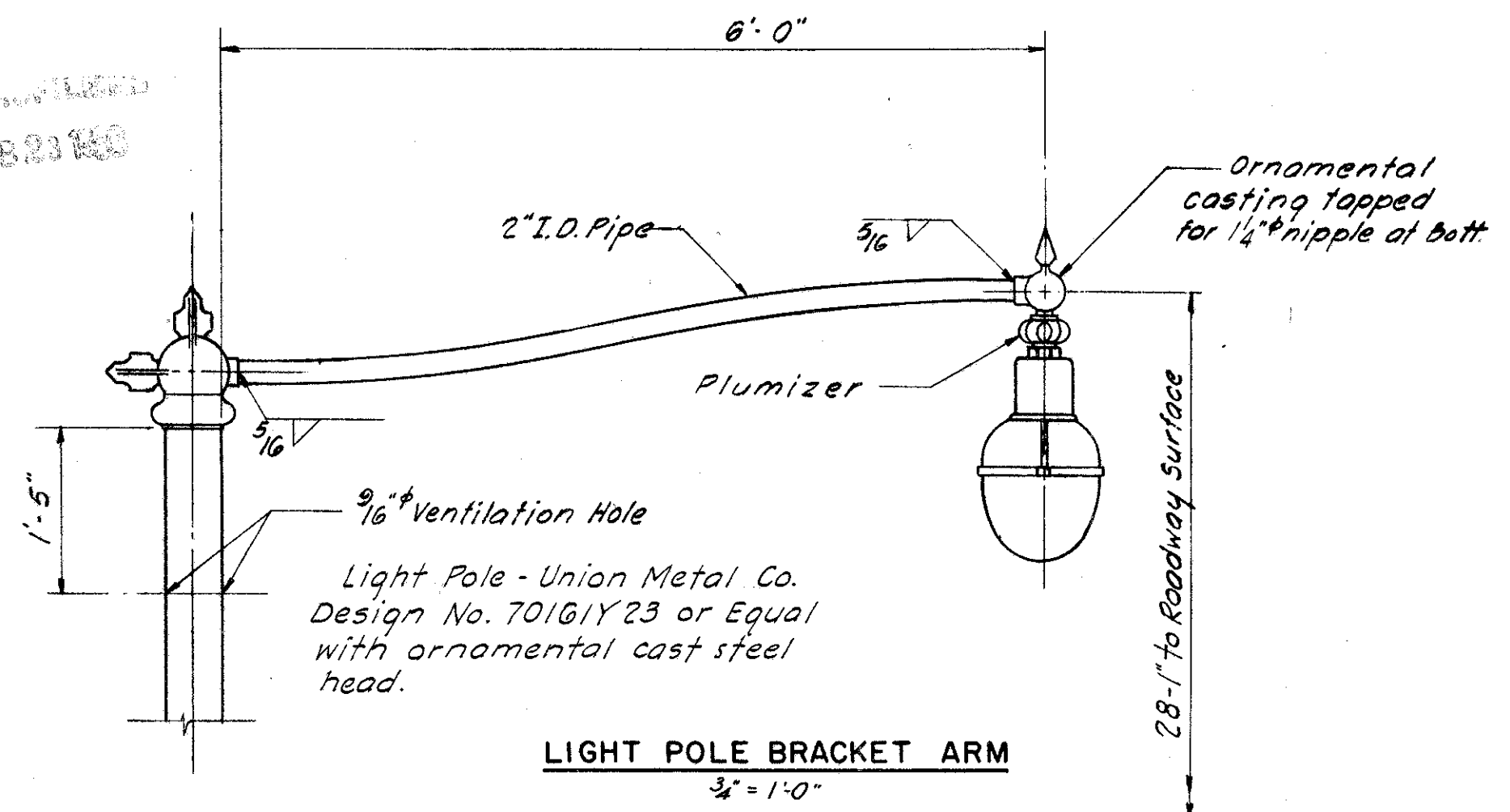
LIGHT POST CONNECTION

Scale: 3"=1'-0"

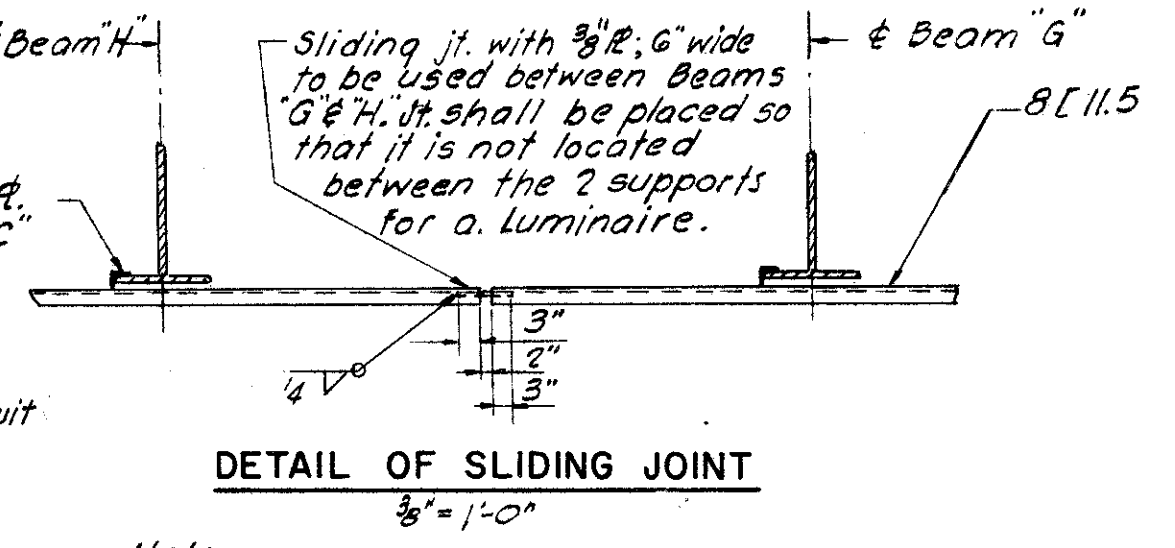
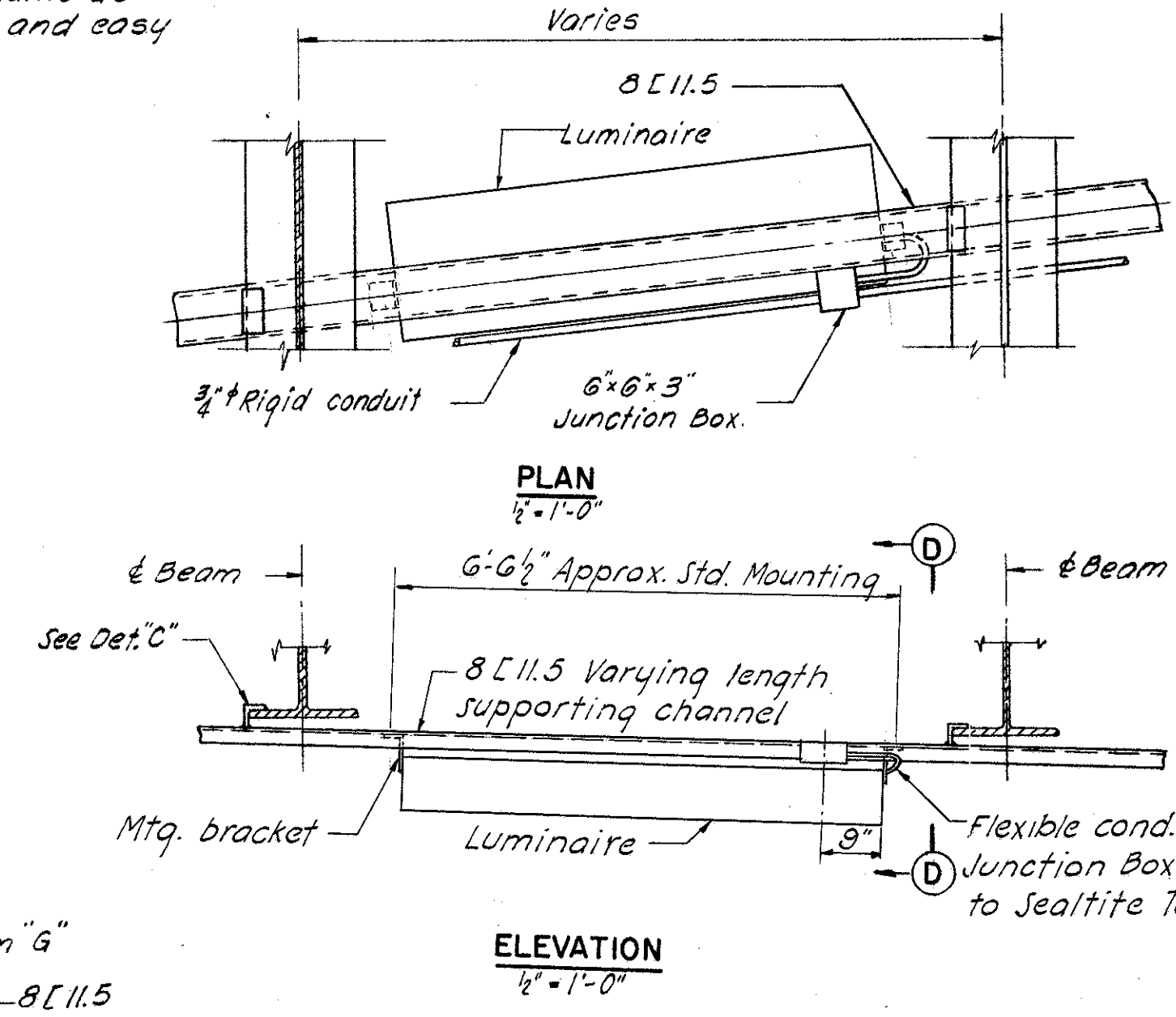
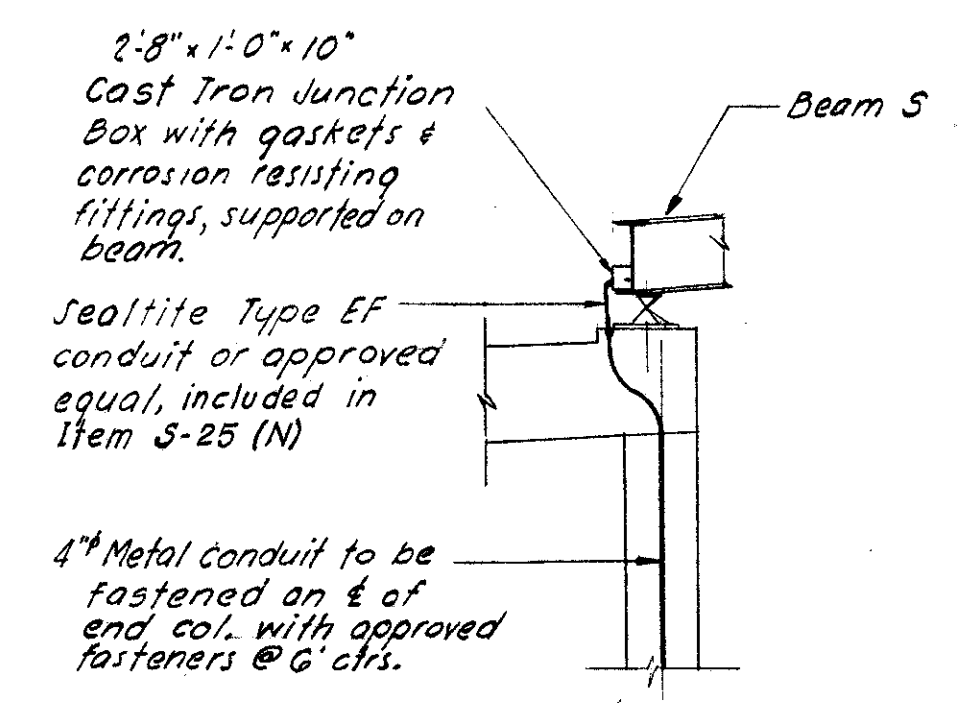
Note: See sheet 102 & 111 for additional reinforcing at Light Posts.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. GUY-42-1750
HANDRAIL DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE As Shown
MADE C.E. DATE 1-5-56
TRCD C.T.H. DATE 1-21-57
CHK D.E.B. DATE 3-13-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-110

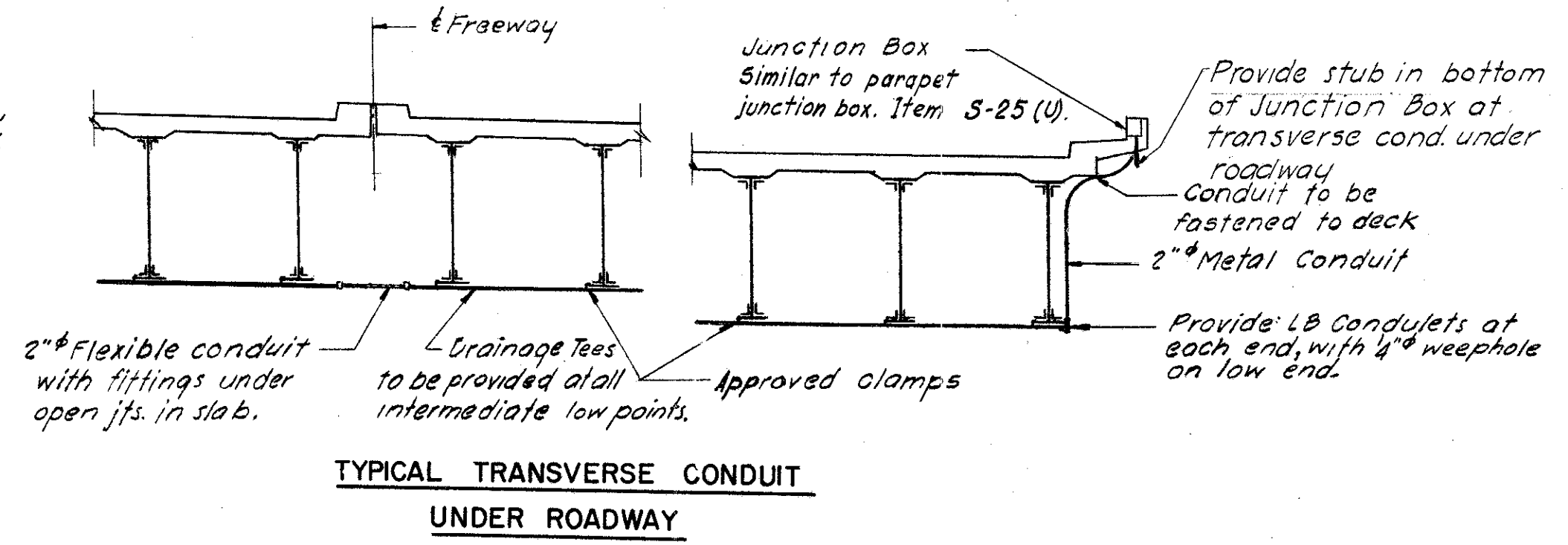
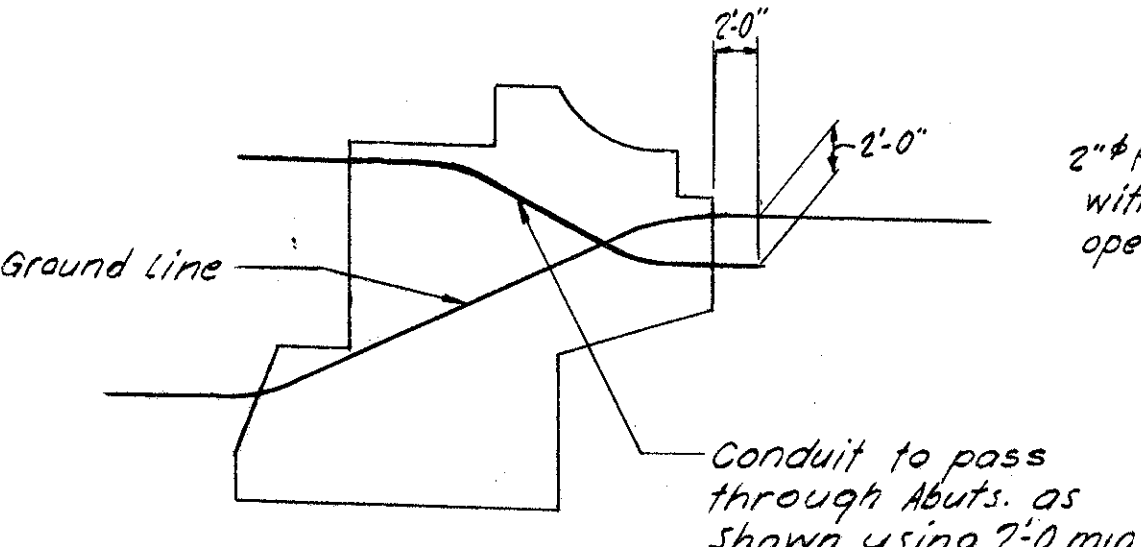
CUYAHOGA COUNTY
CITY OF CLEVELAND
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
CUY-42-(17.43-18.02)



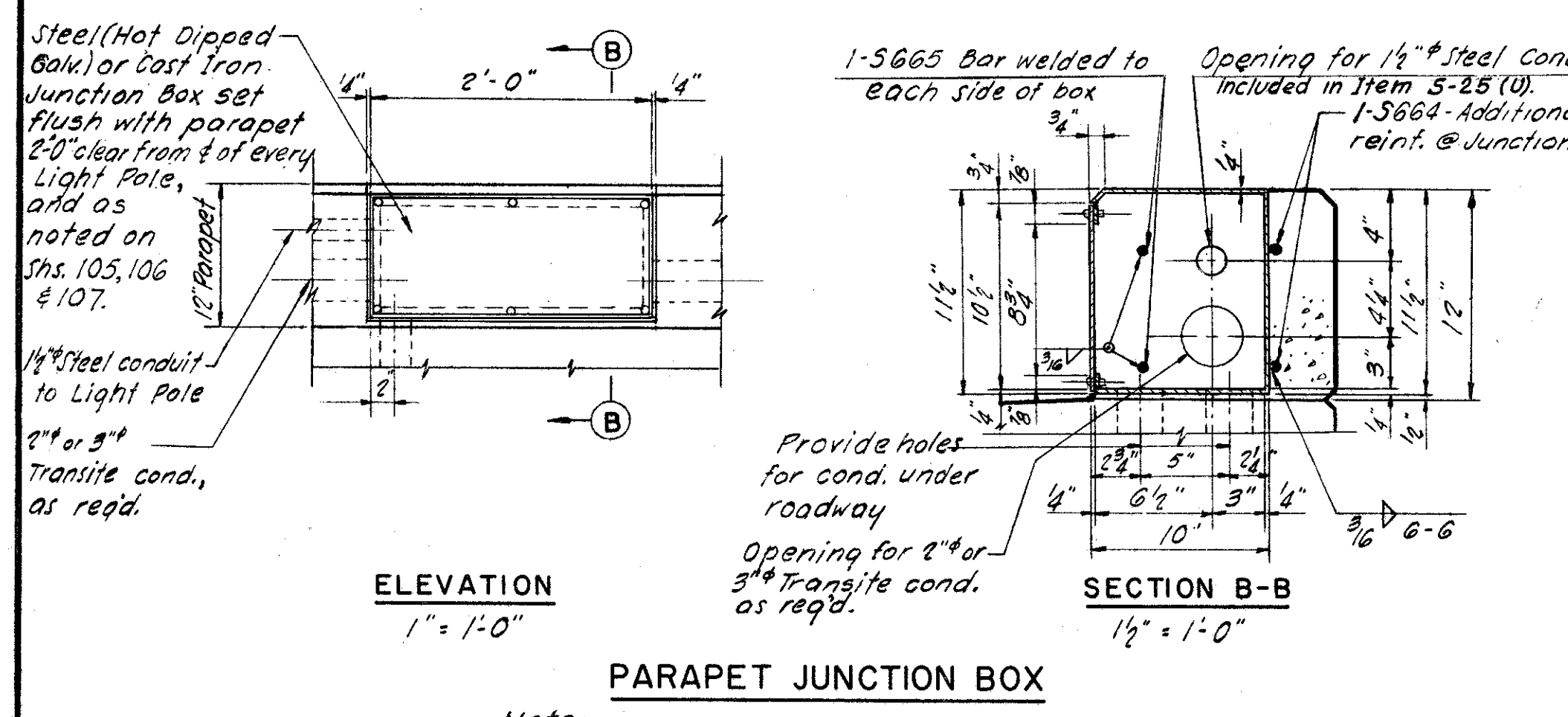
Top of cast steel pole base to taper same as pole and to have snug fit inside post and easy sliding fit inside support.
For support detail see Sh. 110



Note: Provide for 2" flexible conduit with fittings at sliding joints, included for payment with 2" rigid conduit, Item 5-25 (Q)



NOTE: For location of light poles & conduits, see Sh. 103, 106 & 107. Steel support channels & connections to bridge structure to be included in Item 5-7



Note: Provide holes in bottom of junction Box where reqd. Cover to be set on rubber gasket & fastened with 6-3/8" screws. Box to be set in 1/4" wet grout.

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42-17.50
LIGHTING DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE A.E.S. DATE 2-6-57
TRCD A.E.S. DATE 4-13-57
CKD H.H.G. DATE 2-26-57

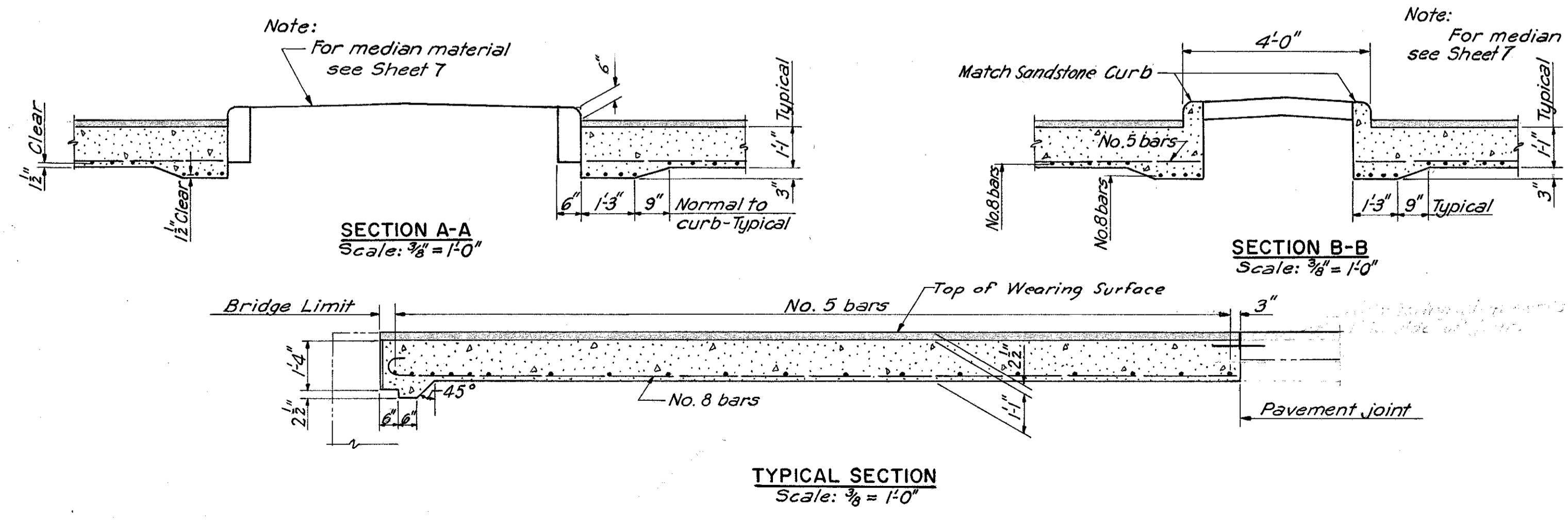
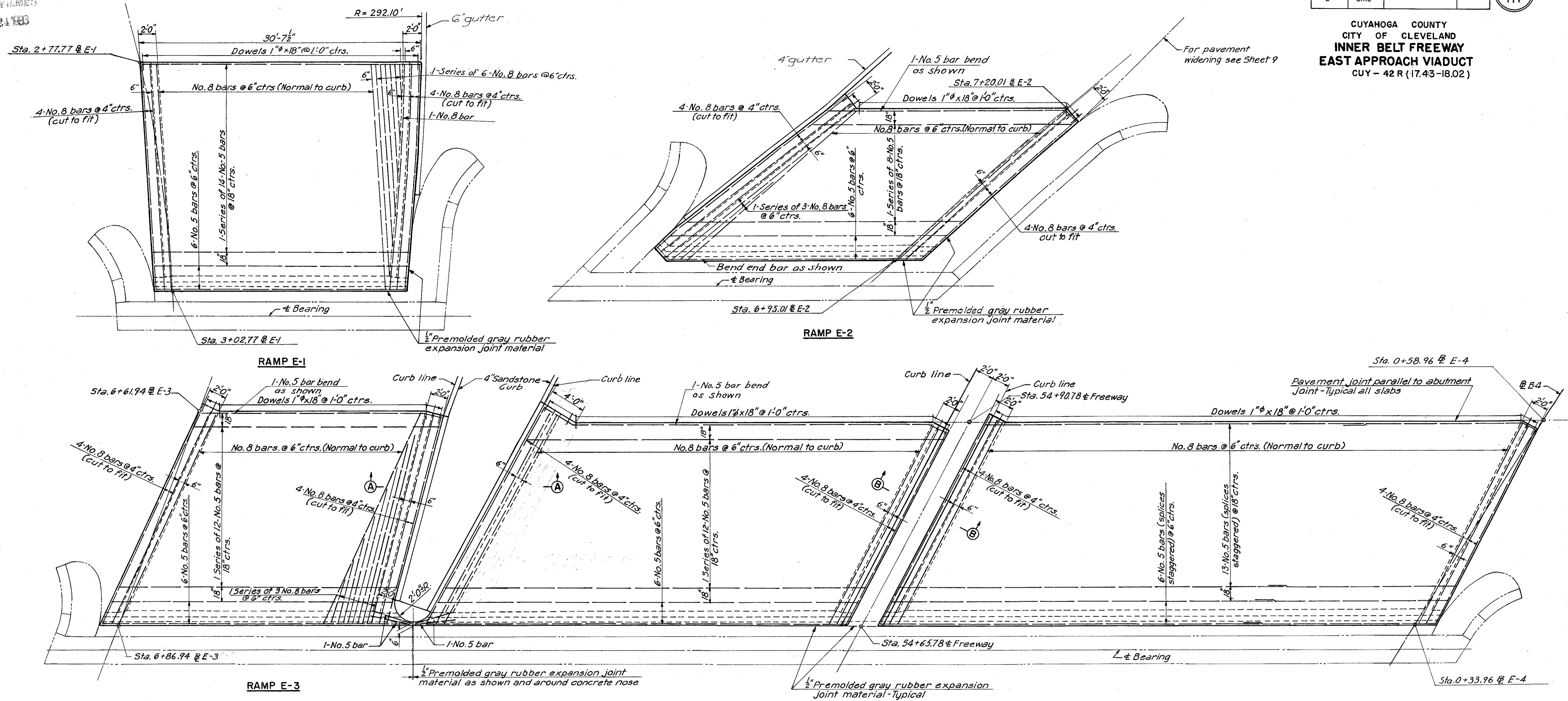
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2) E. B. SHEET-111

MICROFILMED
FEB 21 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

112
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 R (17.43-18.02)



Notes:
For details not shown see State of Ohio Standard Drawing AS-1-54.
All reinforcing steel is for bottom face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42R-17.50
APPROACH SLABS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 3/8" = 1'-0" Unless noted
MADE M.D.S. DATE 11-19-56
TRCD. E.T.H. DATE 12-12-56
CKD. S.M.A. DATE 4-17-57

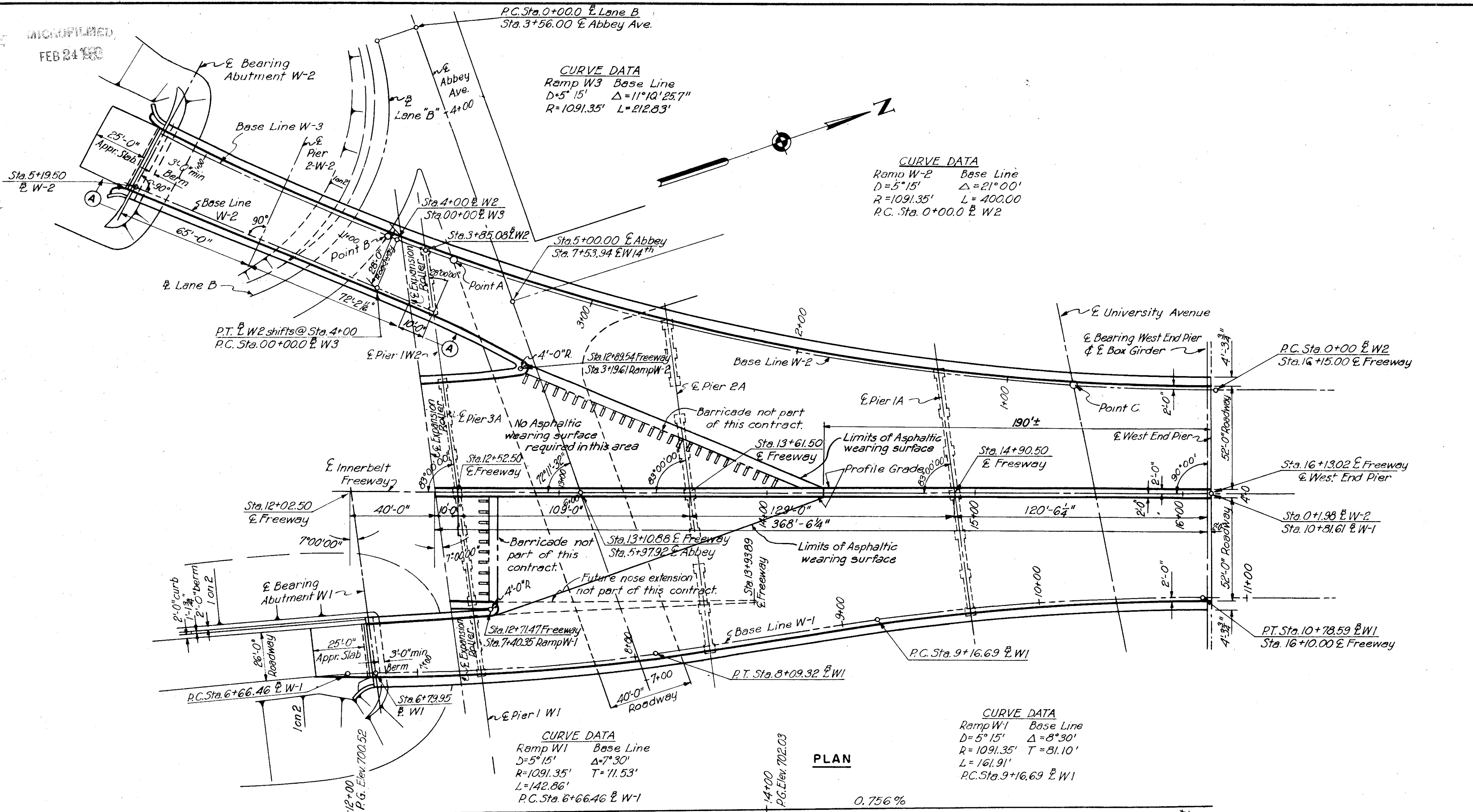
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

914(2E) B SHEET 112

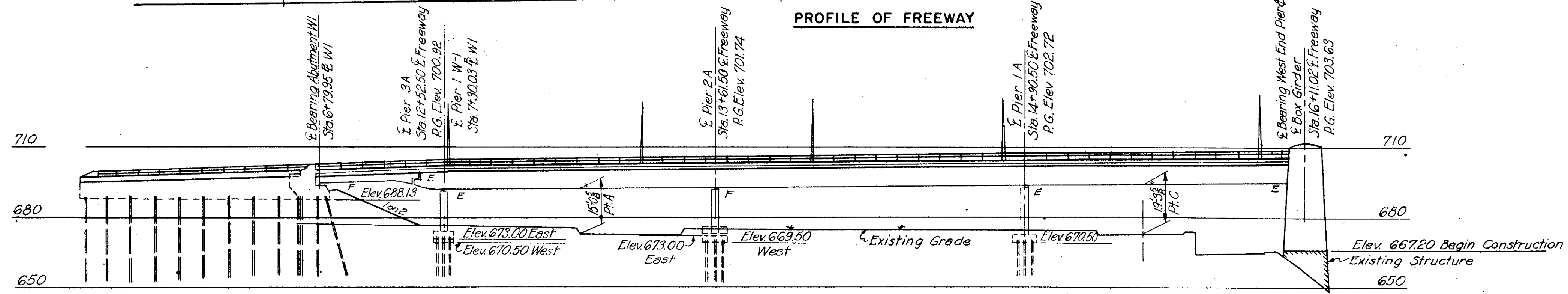
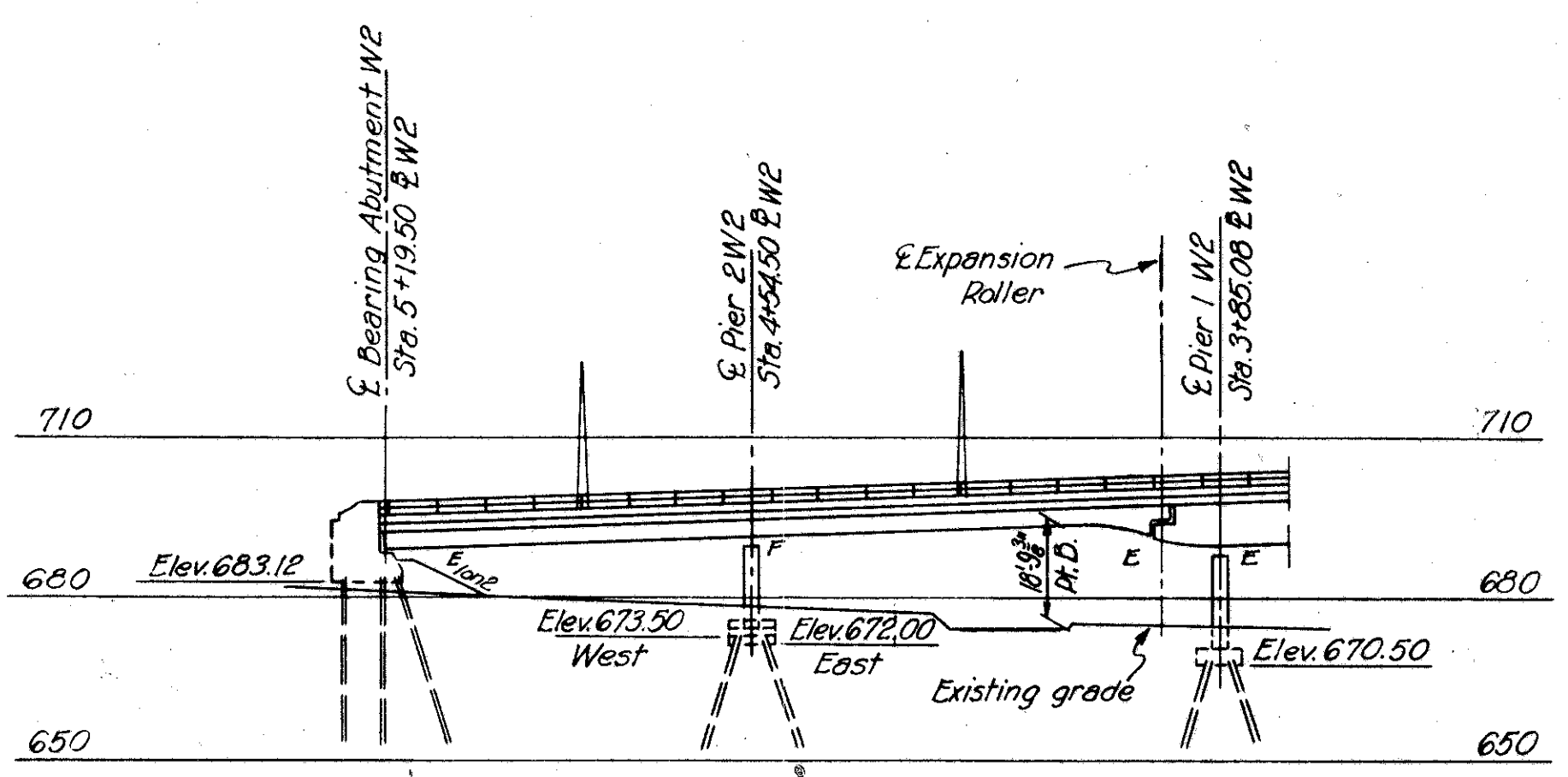
MICROFILMED
FEB 24 1960

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	113
2	OHIO			117

CUYAHOGA COUNTY
CITY OF CLEVELAND
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
CUY - 42R - 17.43



PROPOSED STRUCTURE
Type: Continuous steel beams and girders with concrete deck and substructure.
Span: Varies (see plan)
Roadway: 2 @ 52'-0" with 2'-3"-0" sidewalks
Loading: CF 2000
Skew: Varies.
Surface Course: 2 1/2" asphaltic concrete



ELEVATION

U. S. ROUTE 42 RELOCATION
**INNER BELT FREEWAY
EAST APPROACH VIADUCT**
BR. NO. CUY-42R-1750
**WEARING SURFACE DETAILS
WEST APPROACH GENERAL PLAN**
CLEVELAND CUYAHOGA COUNTY OHIO

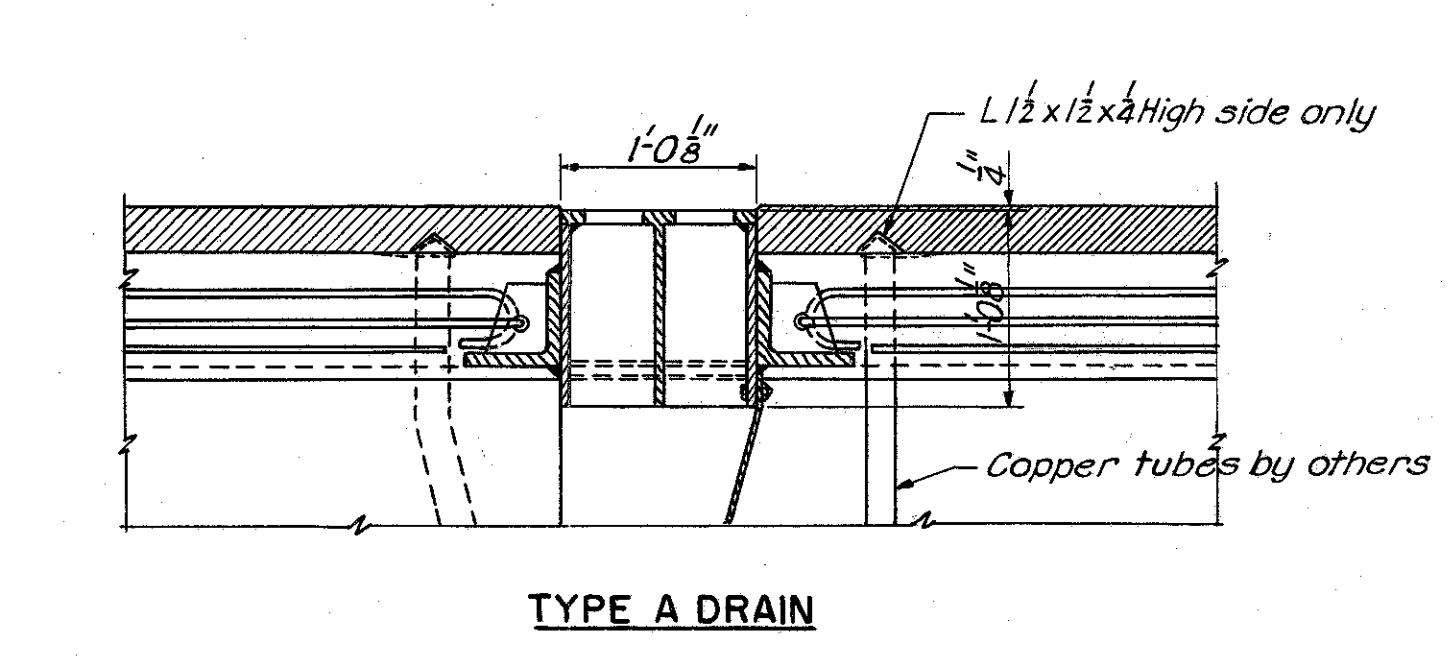
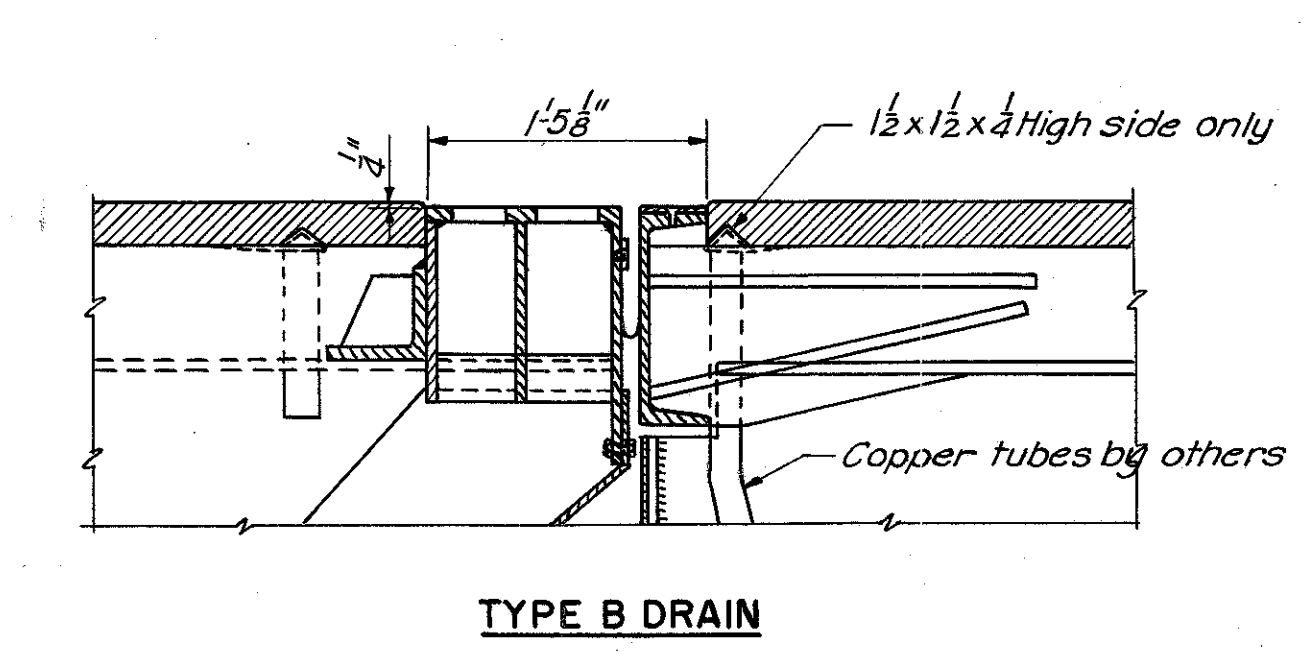
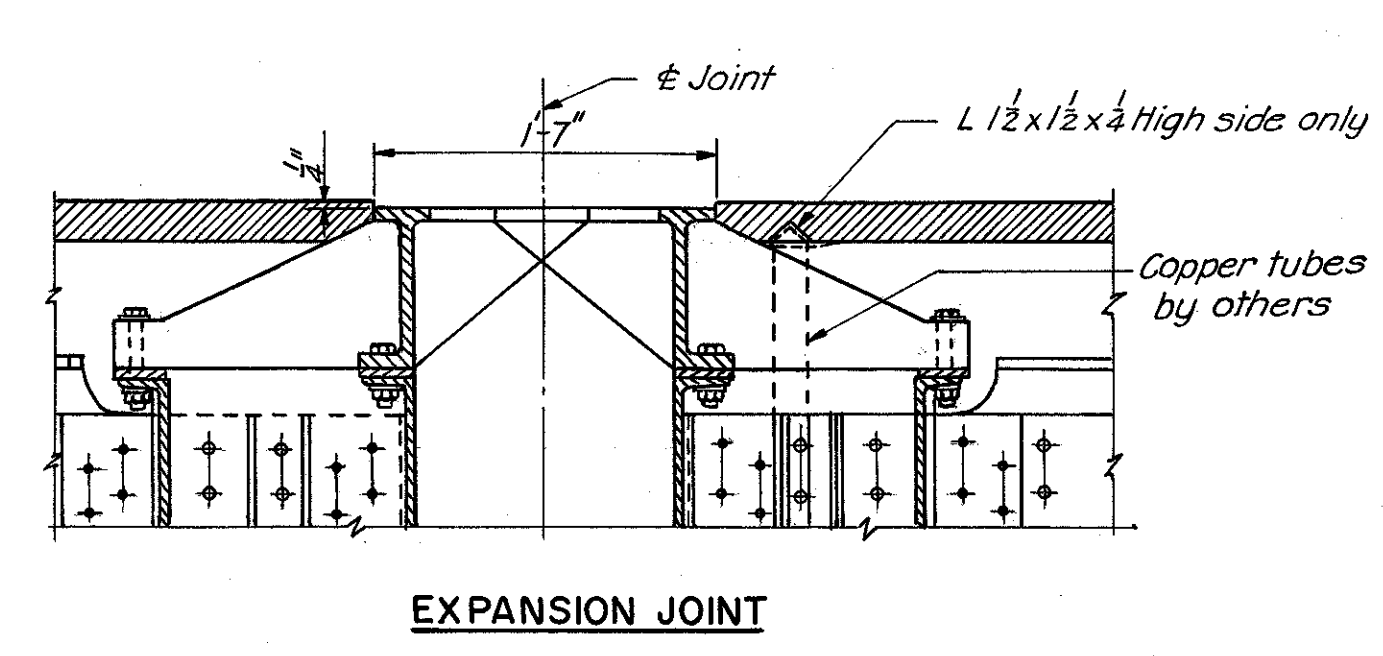
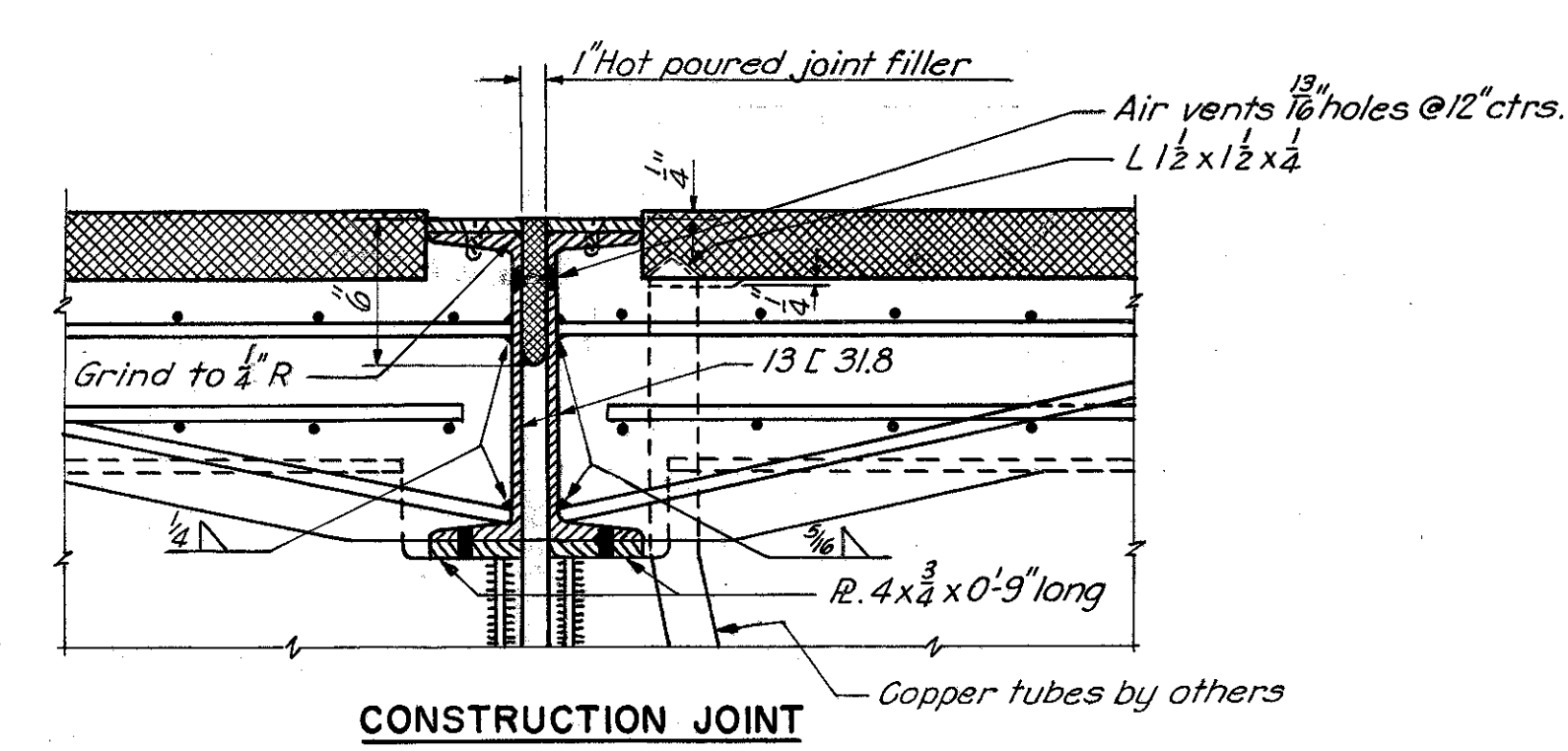
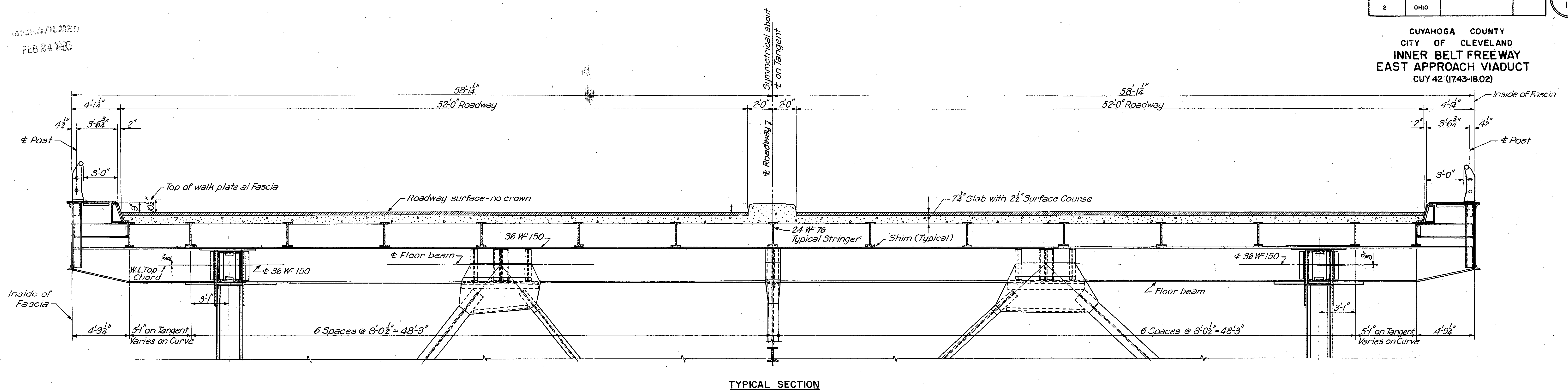
SCALE 1"=30'
MADE A.S.B. DATE 2-17-56
TRCD M.A.C. DATE 6-4-56
CKD C.C.C. DATE 2-27-56

HOWARD, NEEDLES TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914(2)EB SHEET 113

MICROFILMED
FEB 24 1980

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	116 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY 42 (1743-18.02)



Notes:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.
Contractor for the East Approach Viaduct shall furnish and install in addition to the wearing surface Type C waterproofing and L^s 1 1/2 x 1 1/2 x 1/4 over all copper drain tubes.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

WEARING SURFACE DETAILS
CENTRAL VIADUCT SECTIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"

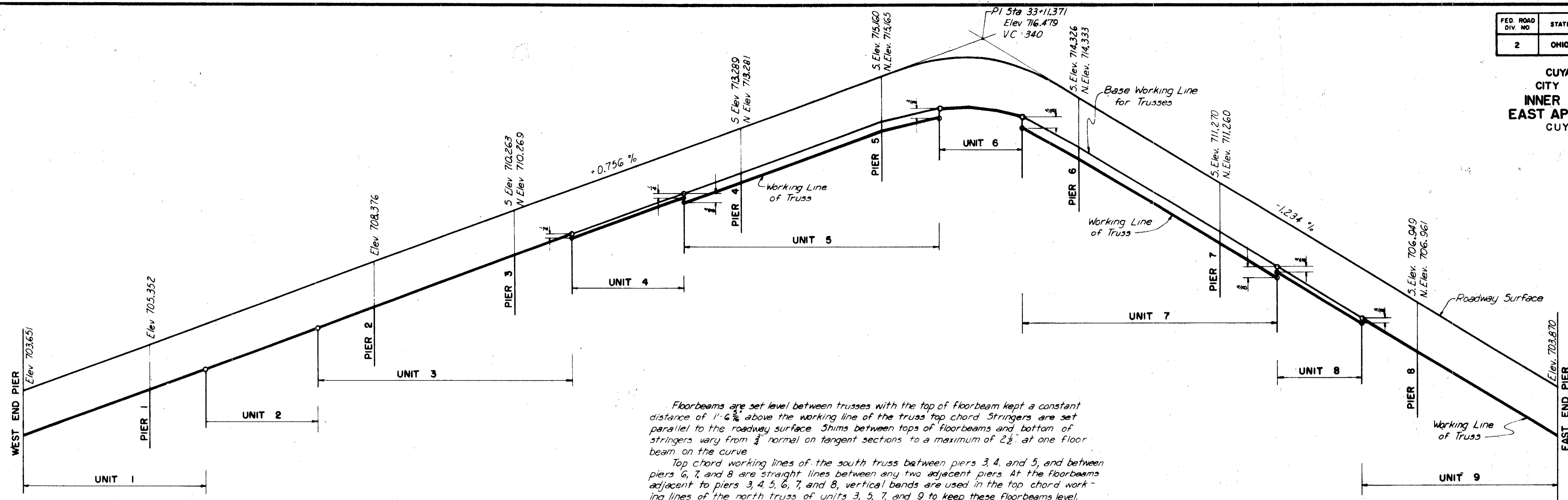
MADE W.E.G. DATE 1-27-54
TRCD E.T.H. DATE 2-29-57
CRD D.M.D. DATE 11-11-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-116

MICROFILMED
FEB 24 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42R-17.43



Floorbeams are set level between trusses with the top of floorbeam kept a constant distance of 1'-6" above the working line of the truss top chord. Stringers are set parallel to the roadway surface. Shims between tops of floorbeams and bottom of stringers vary from 3/8" normal on tangent sections to a maximum of 2 1/2" at one floor beam on the curve.

Top chord working lines of the south truss between piers 3, 4, and 5, and between piers 6, 7, and 8 are straight lines between any two adjacent piers. At the floorbeams adjacent to piers 3, 4, 5, 6, 7, and 8, vertical bends are used in the top chord working lines of the north truss of units 3, 5, 7, and 9 to keep these floorbeams level.

Additional vertical bend points are provided in the top chord working line of both trusses between piers 5 and 6 to allow for the vertical curve. See framing plans, units 5, 6, and 7.

In general, end posts and posts over piers are vertical, other posts are normal to truss top chords.

PIER	PANEL POINT	ELEVATION WL. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO WL. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO WL. OF SOUTH TRUSS	
W. End Pier	100	699.274	703.651	4.377	703.651	4.377	
	101	699.463	703.840	4.377	703.840	4.377	
	102	699.652	704.029	4.377	704.029	4.377	
	103	699.841	704.218	4.377	704.218	4.377	
	104	700.030	704.407	4.377	704.407	4.377	
	105	700.219	704.596	4.377	704.596	4.377	
	106	700.408	704.785	4.377	704.785	4.377	
	107	700.597	704.974	4.377	704.974	4.377	
	108	700.786	705.163	4.377	705.163	4.377	
	Pier 1	109	700.975	705.352	4.377	705.352	4.377
		110	701.164	705.541	4.377	705.541	4.377
		111	701.353	705.730	4.377	705.730	4.377
112		701.542	705.919	4.377	705.919	4.377	
20		701.731	706.108	4.377	706.108	4.377	
21		701.920	706.297	4.377	706.297	4.377	
22		702.109	706.486	4.377	706.486	4.377	
23		702.298	706.675	4.377	706.675	4.377	
24		702.487	706.864	4.377	706.864	4.377	
25		702.676	707.053	4.377	707.053	4.377	
26		702.865	707.242	4.377	707.242	4.377	
27		703.054	707.431	4.377	707.431	4.377	
28	703.243	707.620	4.377	707.620	4.377		
Pier 2	300	703.266	707.643	4.377	707.643	4.377	
	301	703.432	707.809	4.377	707.809	4.377	
	302	703.621	707.998	4.377	707.998	4.377	
	303	703.810	708.187	4.377	708.187	4.377	
	304	703.999	708.376	4.377	708.376	4.377	
	305	704.188	708.565	4.377	708.565	4.377	
	306	704.377	708.754	4.377	708.754	4.377	
	307	704.566	708.943	4.377	708.943	4.377	
	308	704.755	709.132	4.377	709.132	4.377	
	309	704.944	709.321	4.377	709.321	4.377	
	310	705.133	709.510	4.377	709.510	4.377	

PIER	PANEL POINT	ELEVATION WL. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO WL. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO WL. OF SOUTH TRUSS
Pier 3	311	705.322	709.699	4.377	709.699	4.377
	312	705.511	709.888	4.377	709.888	4.377
	313	705.700	710.077	4.377	710.077	4.377
	314	705.886	710.269	4.383	710.269	4.377
	315	706.073	710.462	4.389	710.449	4.376
	316	706.264	710.650	4.386	710.638	4.374
	317	706.454	710.839	4.385	710.827	4.373
	40	706.624	711.028	4.404	711.106	4.392
	41	706.815	711.217	4.402	711.205	4.390
	42	707.005	711.404	4.399	711.396	4.391
	43	707.196	711.591	4.395	711.588	4.392
	44	707.386	711.778	4.392	711.779	4.393
45	707.577	711.965	4.388	711.971	4.394	
46	707.767	712.152	4.386	712.162	4.395	
47	707.958	712.338	4.380	712.353	4.395	
48	708.148	712.525	4.377	712.545	4.397	
500	708.161	712.547	4.386	712.568	4.407	
501	708.329	712.712	4.383	712.736	4.407	
502	708.519	712.899	4.380	712.927	4.408	
503	708.710	713.085	4.375	713.118	4.408	
504	708.881	713.281	4.400	713.289	4.408	
505	709.051	713.477	4.426	713.459	4.408	
506	709.242	713.664	4.422	713.650	4.408	
507	709.433	713.850	4.417	713.841	4.408	
508	709.624	714.037	4.413	714.032	4.408	
509	709.815	714.224	4.409	714.224	4.409	
510	710.005	714.410	4.406	714.415	4.409	
511	710.196	714.597	4.399	714.606	4.408	
512	710.389	714.784	4.395	714.797	4.408	
513	710.580	714.971	4.391	714.988	4.408	
514	710.752	715.165	4.413	715.160	4.408	
515	710.865	715.385	4.480	715.322	4.487	
516	710.990	715.482	4.482	715.467	4.477	

PIER	PANEL POINT	ELEVATION WL. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO WL. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO WL. OF SOUTH TRUSS
Pier 5	517	711.115	715.584	4.469	715.575	4.460
	518	711.225	715.642	4.417	715.636	4.411
	60	711.271	715.650	4.379	715.646	4.375
	61	711.284	715.680	4.396	715.679	4.395
	62	711.298	715.674	4.376	715.675	4.377
	63	711.239	715.633	4.394	715.633	4.394
	64	711.179	715.556	4.377	715.554	4.375
	65	711.046	715.444	4.398	715.437	4.391
	66	710.913	715.295	4.382	715.283	4.370
	701	710.614	715.111	4.497	715.092	4.478
	702	710.367	714.891	4.524	714.863	4.496
	703	710.119	714.636	4.517	714.597	4.478
Pier 6	704	709.897	714.333	4.436	714.326	4.429
	705	709.616	714.017	4.401	714.046	4.430
	706	709.304	713.712	4.408	713.734	4.430
	707	708.992	713.407	4.415	713.422	4.430
	708	708.680	713.102	4.422	713.110	4.430
	709	708.368	712.798	4.430	712.798	4.430
	710	708.056	712.493	4.437	712.485	4.429
	711	707.744	712.188	4.444	712.173	4.429
	712	707.432	711.883	4.451	711.861	4.429
	713	707.120	711.578	4.458	711.549	4.429
	714	706.804	711.260	4.419	711.270	4.429
	715	706.562	710.940	4.378	710.991	4.429
716	706.250	710.636	4.386	710.679	4.429	
717	705.939	710.331	4.382	710.367	4.428	
718	705.665	710.063	4.398	710.092	4.427	
80	705.649	710.026	4.377	710.055	4.406	
81	705.337	709.721	4.384	709.743	4.406	
82	705.026	709.416	4.390	709.430	4.404	
83	704.714	709.111	4.397	709.118	4.404	
84	704.403	708.806	4.403	708.806	4.403	

PIER	PANEL POINT	ELEVATION WL. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO WL. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO WL. OF SOUTH TRUSS
Pier 8	85	704.092	708.501	4.409	708.493	4.401
	86	703.780	708.196	4.416	708.181	4.401
	901	703.500	707.891	4.391	707.869	4.369
	902	703.188	707.584	4.396	707.560	4.372
	903	702.877	707.275	4.398	707.251	4.374
	904	702.572	706.961	4.389	706.949	4.377
	905	702.269	706.646	4.377	706.646	4.377
	906	701.961	706.338	4.377	706.338	4.377
	907	701.652	706.029	4.377	706.029	4.377
	908	701.344	705.721	4.377	705.721	4.377
	909	701.035	705.412	4.377	705.412	4.377
	910	700.727	705.104	4.377	705.104	4.377
911	700.418	704.795	4.377	704.795	4.377	
912	700.110	704.487	4.377	704.487	4.377	
913	699.801	704.178	4.377	704.178	4.377	
E. End Pier	914	699.493	703.870	4.377	703.870	4.377

Note:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42R-1750
WEARING SURFACE DETAILS
CENTRAL VIADUCT ELEVATIONS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
DATE: 11-28-54
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914(2) EB SHEET 117